PAPER TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Vol. 116, No. 17 Thursday, April 29, 1943 Price Ten Cents

# Strike in Price Bros. Mills Not Settled

## Three Newsprint Plants Remain Idle Despite Announcement On Authority of Premier Godbout That Strike Was Over—Government States Temporary Terms For Ending Dispute—Other News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 26, 1943—Despite the fact that the strike in the three newsprint mills of Price Brothers & Co. was reported as settled when last week's dispatch was written—and this on the authority of Premier Godbout—the mills remained idle, because members of the International Brotherhood of Pulp and Paper Workers (A. F. of L.) stayed away from their jobs in protest against settlement. As the absentees included many key men, operations could not be resumed.

### Strike Due to Rival Unions

As already reported, the strike was caused not by disputes as to wages or hours, but by jurisdictional disputes between rival labor unions. In view of this situation the government has had to take further action. Following special meetings of the Provincial Cabinet, Premier Godbout has decided to set up a public inquiry commission to investigate union difficulties and over the week end called upon the company and labor organizations to accept certain conditions for the re-opening of the mills. In a letter addressed to the parties involved, Premier Godbout said:

"The government in view of the fact that the River Bend, Jonquiere and Kenogami mills have not resumed normal operations notwithstanding the acceptance by Price Brothers and Company, Ltd., of the temporary conditions agreed to on April 16, 1943, has met the representatives of the interested labor organizations in order to ascertain why a certain number of employees have refused to go back to work.

"With a view to insuring fully the freedom of association of the workers concerned, the government has come to the conclusion that an inquiry conducted by independent disinterested men is necessary to decide the respective claims of the parties and the line of conduct to be followed. In order that such commission may have complete freedom in making its recommendations, the operation of order-in-council No. 1012 (which contained conditions of the previous settlement) will be suspended.

### Government Issues Settlement Terms

"Without deciding the relative merits of the conflicting attitude of those concerned, the government calls upon the company and the labor organizations to accept the following temporary conditions for the re-opening of the mills:

"1. Re-employment of all workers dismissed since January 1, 1943, for union reasons. In all cases where Cyprien Miron, chief concilitation officer of the provincial Department of Labor, shall decide that such dismissal was not in conformity with section 4 of the agreement between Price Brothers and Company, Ltd., and the following unions: The Quebec Provincial Council of Paper Mills Unions, the International Brotherhood of Paper Makers (A. F. of L.) and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers (A.F. of L.);

"2. No discrimination against the strikers;

"3. The appointment of a public inquiry commission under Chapter 9 of the Revised Statutes of Quebec, 1941, composed of three judges of the Court of King's Bench or of the Superior Court. Such commission shall: (a) Make an inquiry into the union difficulties which occurred in the Jonquiere, Kenogami and River Bend mills of the Price Brothers and Company, and the causes thereof; (b) Report on the basis of collective relations to be established between the company and the employees of such mills;

"4. The agreement between Price Brothers and Company, and the international unions will provisionally be maintained in force until the filing of the commission's first report; however, from May 15, 1943, the operation of clause 4 of such agreement will be suspended.

Acceptance of Mr. Godbout's new proposals will mean suspension of the government-enforced settlement of the strike a week earlier. The walk-outs were called by the National Syndicates of Paper Makers which sought recognition as the sole bargaining agents for the workers. The company refused to negotiate with the Syndicates because it claimed it had continuing contracts with the international unions.

### Newsprint Supply to U. S. Seems Assured

It is announced here that Donald Gordon, chairman of the Wartime Prices and Trade Board, has ex-

*(Continued on page 14)*

# Organize Force to Control Forest Fires

## Wisconsin Conservation Commission and Federal Forest Service Cooperate to Enlist Voluntary Fire Control Workers — Mill Official Discusses Man and Womanpower Problems — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 26, 1943—Mandatory and cooperative procedures both are in the offing to tighten up on the wood supply in Wisconsin against the drains which would be critical for industries, including the pulp mills.

Lest there be a return to the denuding effects of the past from forest fires, the Wisconsin Conservation Commission, in cooperation with the federal forest service, is organizing an effective force to fill the gap of manpower shortage. Soon there will be a potential army of 10,000 fire control workers ready for action. They are a volunteer branch of Wisconsin's civilian defense forces, and will be recruited in every heavily forested area.

E. J. Vanderwall, director of the conservation commission, foresaw the danger as early as February, 1942, and began organizing his men. Neil Le May, chief state ranger, has been placed in charge. The commission prepared an instruction manual and adopted an armband insignia. Five thousand men already have received training, and the remainder will be ready for any emergency when summer arrives. The United States Forest Service has since taken steps along the same lines, using the Wisconsin plan as its model. National civilian defense officials have given their approval, recognizing the importance of fire fighting activities.

The forests were left without adequate fire protection when the state's numerous Civilian Conservation Corps camps were discontinued, and men usually available for this service were drafted into the armed forces. It is believed the new organization will be an effective replacement.

### New Timber Cutting Bill is Introduced

Another conservation step is the bill upon which discussion soon will be opened in the Wisconsin Legislature. It was introduced by a special committee chosen by the conservation commission, and written with the collaboration of public and private industrial foresters, including those of the Nekoosa-Edwards Paper Company and the Tomahawk Kraft Paper Company.

The bill would apply to timber cutting on private lands the same public controls as now apply to fish and game harvesting. Timber owners would be obliged to comply with state conservation rules in the size of trees cut and the method or harvesting and logging.

In order that the legislation will not restrict the tremendous need for war industries, its provisions will not go into effect until the termination of hostilities. However, it is believed the existence of the law will have an immediate restraining effect until such time as rules are promulgated by the conservation commission. Paper mill owners have been among the strongest advocates of a system of selective cutting to conserve the pulpwood supply.

While the Marinette County board of supervisors was considering whether to continue its program under which more than 300,000 acres of land are set aside for county forests, the Badger Paper Mills, Inc., Peshtigo, Wis., and the Kimberly-Clark Corporation, Neenah, Wis., joined with other timber using firms in sponsoring a page advertisement in the Marinette, Wis., newspaper pointing out that "It is evident that a sustained yield forest program is as essential to our industries and our country as our agricultural program is to our farmers and our country." The board voted favorably on a resolution which will prevent its program from being discarded.

### Discusses Man and Womanpower Problem

Taking a long look ahead on the manpower problem, Kimberly-Clark Corporation, Neenah, Wis., estimates that it will have to replace 1,600 more employees if General Louis B. Hershey's statement becomes an actuality to the effect that 10 out of every 14 able-bodied men of draft age will be in the armed forces by the end of the year.

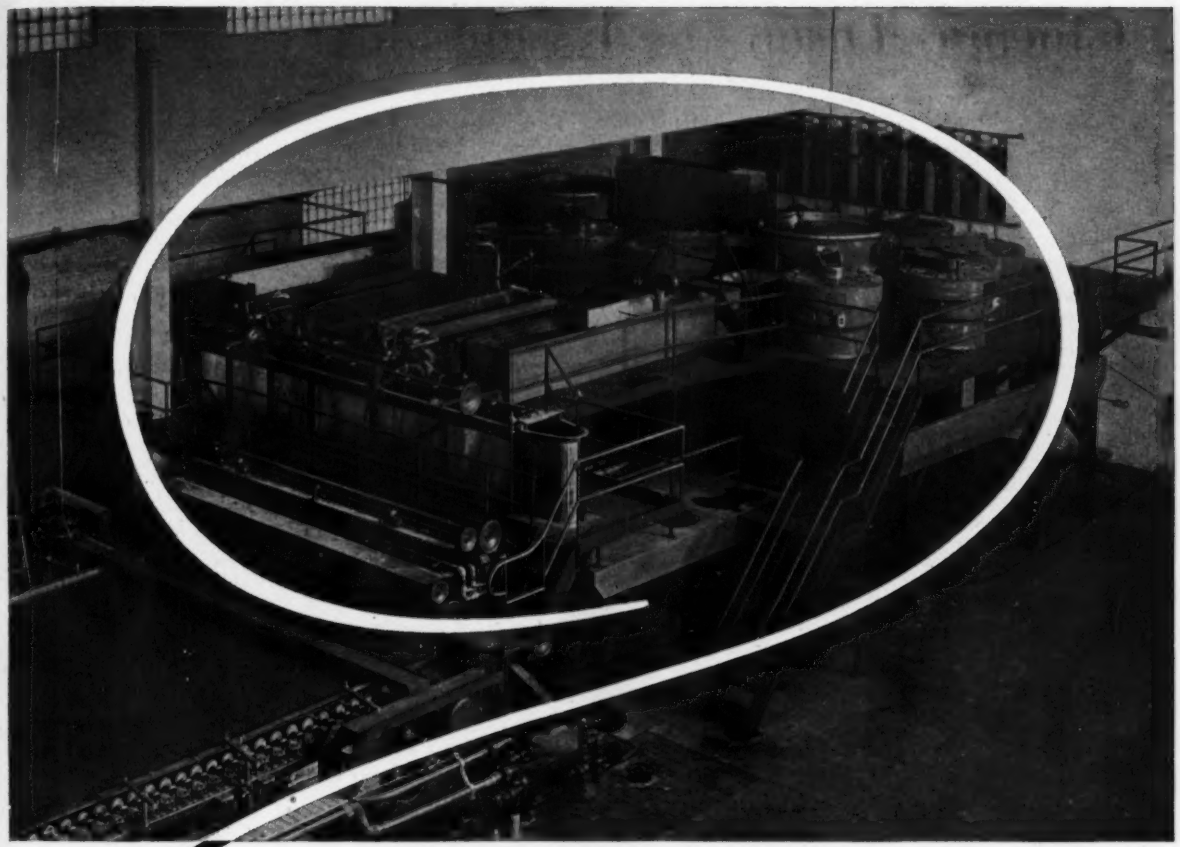
This is the summation made by John B. Simonich, industrial relations official of the corporation, in an address to the Kiwanis club at Neenah last week.

The speaker said the corporation already has lost 1,600 permanent employees to the armed forces. About the middle of last year, there was evident the drain the company must face. An 8-hour shift schedule was inaugurated to replace the 6-hour shift, but total hour operation could not provide enough easement of the problem. The more extensive use of women became necessary, and there has been a 30 per cent increase in the number on the payrolls as of February 1. Further replacements will bring the ratio of women up to 60 per cent, Mr. Simonich said.

Greater use of women presents problems. Intermediate rates of pay were established, realizing that women cannot do all the jobs men did and it is necessary in some instances to hire three women for work which two men did previously. The company also must be cognizant of restrictions on women employees such as limited hours per day, impossibility of substitution among women, and necessity for carrying extra women to help out in labor situations. Around-the-clock luncheon service, first aid and rest room facilities also became necessary.

### Lists Small Stands of Pulpwood

Several small stands of timber suitable for pulpwood are listed in the first of a series of bulletins issued by the state timber marketing committee from the office of F. B. Trenk, extension forester of the University of Wisconsin, Madison, Wis. This represents the initial effort to provide a clearing house on information between timber and sawlog owners and others needing these materials. In most cases it is indicated that the buyer will have to do the logging, but there are others in which the trucking is the only service necessary. The bulletin gives specifications wherever possible. Interested persons or firms will be placed on the mailing list upon request.



# KEY EQUIPMENT, TODAY!

**Not every mill has such a fine, modern layout of Bird Screens and Bird Centrifiners. But whatever your dirt removal equipment — stock conditions being what they are — now is the time to make the most of it.**

## Keep In Touch With Dirt Removal Headquarters

**As builders of the bulk of this continent's machinery for keeping dirt out of paper, we're anxious to help all we can. War work prevents us from offering you the additional equipment you may need but it doesn't keep us from bringing our knowledge and experience to bear on any dirt removal problem . . . If dirt is one thing that is bothering you, by all means let us see if there isn't something we can do to help.**

**BIRD MACHINE COMPANY**

SOUTH WALPOLE • MASSACHUSETTS

# Chicago Discusses Essentiality of Paper

## Curtailment, Difficult Manpower and Shipping Problems Spur Midwest Distributors to "Sell" the Essential Nature of Paper — Col. Dan Hardt Talks to Salesmen — Safety Conference May 4.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 26, 1943—The Chicago paper market went into the final weeks of April with the thought of establishing the "end uses" of paper uppermost in its mind. Curtailed production, the terrific problem of manpower, shortages of pulp, shipping problems all conspired to force the industry to redouble its efforts to sell the essential nature of paper during war time. Jobbers encouraged their neighbors and salesmen encouraged the jobbers to utilize the forms provided by the N.P.T.A.

Meanwhile, lesser lights in the paper grades, such as groundwoods, moved into new and higher utility ground during the week. Sulphites found a condition wherein an order backlog of from seven to ten weeks was not at all uncommon. Krafts faced an increasingly serious pulp situation while book and cover papers in the Chicago area reflected the tense situation by riding directly under the top ceiling prices which were squeezing in increased tensity as replacement costs mounted. Waste papers found collections somewhat better with improved weather and some slight wage increases to attract man power.

### Salesmen Learn of War's Immensity

The western division of the Salesmens Association of the Paper Industry got an earful of the immensity of the War at the Monday open meeting held on April 19. Colonel Dan Hardt, on leave from the Neenah Paper Company and in charge of transportation for the Army in the 6th Corps area, was the featured speaker.

Colonel Hardt was introduced by Burt Fisher who came down from Neenah to do the pleasant job and participate in the discussions. Colonel Hardt pointed out that the Army Service Forces was formed on March 18, 1942, and had processed 17 billion dollars worth of supplies and equipment and had inducted and assigned over four million men as well as handled over six billions in military facilities.

The Transportation Corps of the ASF was formed in July, 1942, and in nine months' time this huge force had transported more than one million men and fourteen million tons of supplies, a figure six times in supplies and two times in men in excess of World War I. Colonel Hardt also revealed the fact that there are now half a million less freight cars and 22,000 less locomotives than in World War I, yet this lessened force was faced with the job of moving fifty per cent more freight—a feat made possible by the full use of America's fully developed trucking system.

Colonel Hardt then plead with the audience to refrain from travel just as much as possible, pointing out that the moving of 15,000 men at frequent intervals was enough of a job in itself to fully tax the Army Service Forces.

Courtney Reeves, Allied Paper Mills, was also honored at the April 19 meeting when he was presented with a beautiful watch in token of his splendid services as president of the SAOEYES. The presentation was made in his usual vigorous and interesting style by George K. Gibson of Mosinee, the first president of the Salesmens Association of the Paper Industry.

### Study "Equal Pay for Women" Bill

Illinois paper jobbers, manufacturers and others are now faced with a new kind of a problem coming from the Illinois General Assembly. The problem is within the proposed "equal pay for women" bill now in the House Industrial Affairs Committee. The bill proposes equal pay for "comparable work" but no one seems to know what that "comparable work" definition means and those who are strenuously opposing the bill, even though the principle may sound very good, are not anxious that a horde of Department of Labor Inspectors be turned loose to find out, in their own quaint way, just what is "comparable work." Paper trade leaders here likewise feel that such a bill would prove as much as thirty per cent inflationary at a time when deflation is uppermost in all minds. Further, such proposals would be expected to harm the War effort by making it less interesting for employers to employ women under the provision of such a vague statute.

### Safety Conference Here in May

The Annual Midwest Safety Conference will be held in Chicago at the Sherman Hotel on May 4, 5 and 6. Under the auspices of the Greater Chicago Safety Council and the Institute of Traffic Engineers, the conference is expected to draw heavily from safety engineers and executives within the paper industry in this area. Sessions will be held in Industrial Safety with particular emphasis on the Small Plant Session; Transportation and Traffic; Industrial Hygiene, Commercial Vehicles; Safety Engineering Courses and Fire Prevention. Governor Dwight Green of Illinois and Lieutenant Colonel Chester L. Fordney of the United States Marines are to be the featured speakers.

### Workers Pay Tribute to Navy Hero

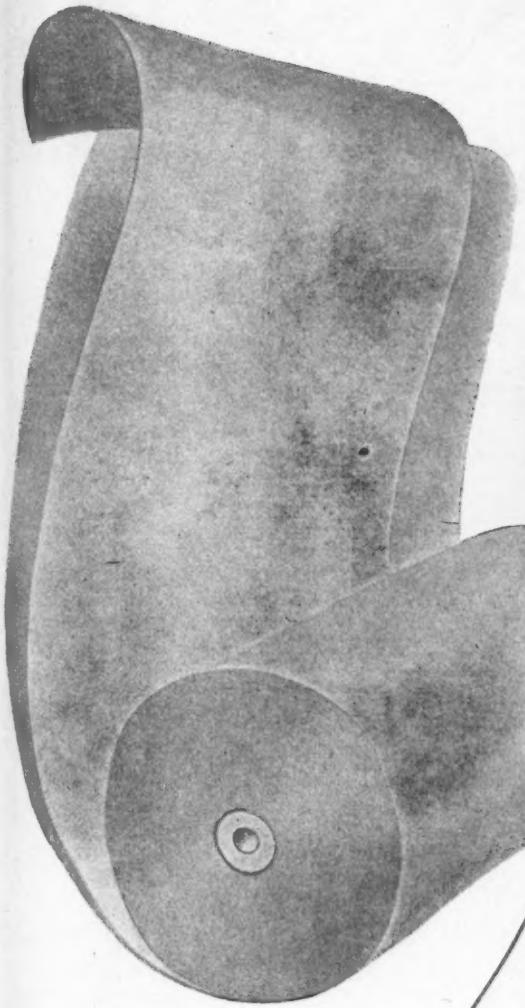
Workers of the Dixie-Vortex Company paid tribute to the memory of W. E. Elliott, a former employee recently in the Chicago plant who was killed in action aboard the U. S. S. Boise when the 10,000 ton cruiser sunk six Jap ships in the Pacific last October. C. F. Dawson, vice-president of Dixie-Vortex, presented a $500 war bond to Elliott's widow. The hero's mother was present at the ceremony as was Elliott's three months old daughter whom he never saw.

---

## Discontinue Monadnock Sulphite Bond

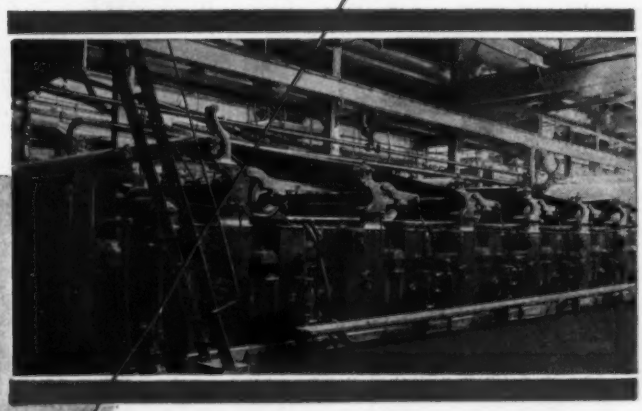
BOSTON, Mass., April 26, 1943—The Monadnock Paper Mills, Bennington, N. H., have discontinued the manufacture of Monadnock Sulphite Bond for the duration of the war, due to the condition of the sulphite market and the labor situation.

# How to Lengthen Felt Life and Lower Production Costs



Lengthening valuable felt life from 50% to 200% is the remarkable service record paper manufacturers credit to Dowicide G. This product of Dow research provides the proper germicidal solution to wash felts during shutdowns and to protect them from the damaging attack of micro-organisms.

In mills where felts are subject to heavy manufacturing loads and where there are no shutdowns between felt changes, Dowicide G can be added to the system continuously. A concentration of 50 parts per million will inhibit



the growth of the organisms which shorten felt life and eliminate them as a destructive factor.

Dowicide G is only one of 17 Dowicide products which are being used in various paper manufacturing operations to prevent growth of fungi and bacteria. These modern chemical products are helping manufacturers of paper, leather, paint, lumber and many other essential products to conserve and make the most of what they have.

**THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN**

New York • Chicago • St. Louis • Houston • San Francisco
Los Angeles • Seattle

**OTHER USES FOR DOWICIDES:** Preventing stain and decay on pulp logs; preserving lap and pulp stock; making paper products mold-resistant; protecting paper products from decay and termite attack; controlling slime conditions; reducing structural and paint maintenance costs.

# DOWICIDE

**GERMICIDES AND FUNGICIDES**

DOW

CHEMICALS INDISPENSABLE
TO INDUSTRY AND VICTORY

# Government Paper Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 28, 1943—Barton, Duer & Koch Paper Company has been awarded the contract for furnishing 814,650 pounds of 50% rag, index paper at 12.25 cents. Awards for other paper items by the Government Printing Office include the following.

The same firm will also furnish 28,783 pounds of 50% white unglazed manifold paper at 21.5 cents. Same firm will also furnish 28,700 pounds of 25% rag, buff bond paper at 15.8 cents and Walker, Goulard Plehn Company will furnish 114,400 pounds of supercalendered book paper at 6.54 cents. Same firm will furnish 86,000 pounds of same at 6.54 cents and Bermingham & Prosser Company will furnish 64,000 pounds of same at 7.04 cents. Paper Corporation of U. S. will furnish 285,600 pounds of same at 6.78 cents.

Wilcox-Walter Furlong Paper Company will furnish 8,080 pounds of chemical wood yellow writing paper at 8.85 cents and Bermingham & Prosser Company will furnish 36,600 pounds of 25% rag, 24 x 34 white ledger paper and 19,200 pounds same 22 x 34 at 12.3 cents. Paper Corp. of U. S. will furnish 10,000 pounds of 50% rag, pink index paper at 14.25 cents. Walker Goulard Plehn Company will furnish 9,720 pounds of 25% rag, white bond paper at 14.42 cents and same firm will also furnish 18,296 pounds same buff at 15.17 cents.

Marquette Paper Company will furnish 29,652 pounds of light weight machine finish book paper at 7.88 cents and Bermingham & Prosser Company will furnish 86,250 pounds of 25% rag, white ledger paper at 12 cents. Walker Goulard Plehn Company will furnish 24,879 pounds of white supercalendered book paper at 8 cents and Paper Corporation of U. S. will furnish 60,000 pounds of high finish chemical wood tag board at 6.75 cents. North American Pulp and Paper Company will furnish 52,000 pounds of chemical wood white bond paper at 8.25 cents and Stanford Paper Company will furnish 44,550 pounds of tan bristol cover paper at 9.3 cents. R. P. Andrews Paper Company will furnish 65,200 pounds of M.F. book paper at 7.227 cents and the Eatern Corp. will furnish 30,144 pounds of white sulphite ledger paper at 8 cents.

Bulkley Dunton & Co. will furnish 200,000 pounds of white chemical wood writing paper at 6.9 cents and Walker Goulard Plehn Company will furnish 4,000 pounds of No. 2 white offset book paper at 7.75 cents. The same firm will also furnish 5,688 pounds of 50% rag, white manifold paper at 21.68 cents.

Paper Corporation of U. S. will furnish 168,000 pounds of 50% rag, blue white litho finish map paper at 13.47 cents and the Zellerbach Paper Company will furnish 40,000 pounds of same $13.50 per Cwt. Stanford Paper Company will furnish 228,750 pounds of same at 17.25 cents, Walker Goulard Plehn Company will furnish 22,675 pounds of 25% rag, white bond paper at 13.5 cents and the Mudge Paper Company will furnish 6,640 pounds of tan leather finish cover paper at $15.45 per M sheets.

Walker Goulard Plehn Company will furnish 10,997 pounds of white glazed manifold paper at 23 cents and the Stanford Paper Company will furnish 49,100 pounds of white tag semi antique cover paper at 9.9995 cents, The Mudge Paper Company will furnish 92,620 pounds of tan tag board at 13.75 cents and 62,250 pounds of same at 6.75 cents. Stanford Paper Company will furnish 70,000 pounds of tan tag board at 4.75 cents. George LaMonte & Son will furnish 9,450 pounds of Sensitcoat Safety book paper at $25.25 per cwt. Marquette Paper Company will furnish 92,768 pounds of white offset book paper at 7.80 cents and Cauthorne Paper Company will furnish 52,530 pounds of white chemical wood writing paper at 7.24 cents. Marquette Paper Company will furnish 500,000 pounds of writing paper 25% ground wood pulp at $32,500.00.

D. L. Ward Paper Company will furnish 200,000 pounds of chemical wood white writing paper at 7.34 cents and the Marquette Paper Company will furnish 26,040 pounds of 41 x 45 white offset book paper and 14,640 pounds of same 38 x 50 at $3,620.52. Walker Goulard Plehn Company will furnish 32,600 pounds of yellow sulphite writing paper at 9.14 cents. The same firm will also furnish 36,176 pounds of white sulphite writing paper at 7.5 cents and the Mudge Paper Company will furnish 55,500 pounds of white sulphite writing paper at $3.76 per M sheets.

Whiting & Co. will furnish 58,650 pounds of 25% rag, yellow bond paper at 14 cents and 34,180 pounds of 25% rag white ledger paper at the same price. Walker Goulard Plehn Company will furnish 3,219 pounds of 25% rag white bond paper at 14 cents.

## New Jersey Has a Handmade Paper Mill

One the Cutting estate at Gladstone, N. J., there is now in operation a small-scale paper mill where the entire process of making paper by the hand-mould method is pursued with enthusiasm by disabled men of the merchant marine. A large, splendidly constructed building with spacious living quarters and that once stabled many blooded horses, has been converted into a hospital, with recreation and work rooms, as a convalescent home for seamen, victims of torpedoings, bombings, gunfire and exposure. The institution is under the management of the Service Division, Recruitment Manning Organization, of the War Shipping Administration.

While on a visit to the one-man paper mill conducted by Harrison Elliott in the building of The Stevens-Nelson Paper Corporation, Mrs. Charles Suydam Cutting was impressed with the idea that papermaking by hand could be used in occupational therapy, and would give the men a manly craft to create something useful and serve as a diversion and an aid to their recovery.

The services of Harrison Elliott were secured to assemble a hand papermaking equipment and to supervise its operation. It is now a reality and a going venture. The men cut up cotton and linen rags, often using an old shirt or other cast-off garment to lend interest, and pursue the process of papermaking right through to a finished sheet of paper of practical use. It is possible for them to make their cover and text papers for hand bookbinding. The bookbinding is done on the premises in a finely-equipped studio under the tutelage of Kathryn and Gerhard Gerlach, and is very popular with the men. The men also make their own stationery, sheets and envelopes, by hand.

# the pinch-hitter that's scoring home runs

PAPER is pinch-hitting for critical metals in a thousand different places. Releasing strategic materials in containers . . . cases . . . even aircraft. Relieving thousands of tons of steel for active duty against the Axis!

Perhaps the most versatile resource of all, paper's part in the war is as vast as it is vital. Thanks to creative thinking and foresighted planning, the industry has turned paper into America's top trouble-shooter . . . and its possibilities have only begun.

At Wyandotte, we're doing our utmost to help you get on with the job. The burden on paper today demands chemicals of absolute quality . . . in *quantity*. And that is the way we are furnishing them . . . and have furnished them for over half a century. Soda ash, caustic soda, and calcium carbonate are available in abundance.

Wyandotte chlorine is government-allocated, of course. But though supplies are limited now, our expanding facilities and knowledge of this essential element hold promise for paper in that promising tomorrow.

**CAUSTIC SODA, INSIDE AND OUT . . .**

Everything to do with caustic soda . . . uses, handling, and properties . . . can be found in the invaluable handbook prepared by Wyandotte. 56 pages of reference material and information that will be helpful in your operations. Copies available free of charge. Write Wyandotte Chemicals Corporation, Wyandotte, Michigan.

**Wyandotte**

OFFICES IN PRINCIPAL CITIES

**WYANDOTTE CHEMICALS CORPORATION**

MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

• Wyandotte Chemicals Corporation consolidates the resources and facilities of Michigan Alkali Company and The J. B. Ford Company to better serve the nation's war and post-war needs.

SODA ASH • CAUSTIC SODA • CHLORINE • BICARBONATE OF SODA • CALCIUM CARBONATE • CALCIUM CHLORIDE • DRY ICE

# Obituary

### Arthur W. McEwan

Arthur W. McEwan, president of McEwan Brothers Paper Mills, Whippany, N. J., and president of the Morristown and Erie Railroad, died April 20 after a short illness. He was 71 years old. He had been a Palm Beach winter resident for the last twenty-five years.

Mr. McEwan was the last of seven brothers, members of a family which began manufacturing paper in Scotland more than 100 years ago. Mr. McEwan was known widely for his McEwan patent, evolved in 1892, a process for manufacturing box boards from old newspapers.

Mr. McEwan leaves a widow and three grandchildren. Funeral services will be held at the home in Whippany. Burial will be in Morristown.

### Col. P. C. Brashear

Col. Peter Cominges Brashear, 76, president and board chairman of the Fort Orange Paper company, died April 19 at his home at Castleton, N. Y.

Col. Brashear had been active in industry and banking in the Albany area for more than 40 years. He was born at Stephensport, Ky., January 20, 1867, son of Joseph David and Mary Scott Brashear. He was a descendent of the DeBrassier family of the French nobility.

He had been associated with the Fort Orange Paper company since 1910, serving as vice-president, president and chairman of the board of directors. He also was president of the Castleton Building, Savings and Loan association.

He served in the Spanish American war as first lieutenant and quartermaster of the 4th Kentucky Infantry, United States volunteers. During the last World War he was chairman of the Liberty Loan committee of Schodack. He was colonel and aide de camp on the personal staffs of Governors Flem D. Sampson and Ruby Lafoon of Kentucky.

## PRICE BROTHERS STRIKE NOT SETTLED

*(Continued from page 7)*

pressed the view to the U. S. War Production Board, that Canada expects to be able to supply its quota of newsprint for the United States during the third quarter of 1943, subject to wartime conditions and the original 10% cut in supply. It appears that in the recent conference in New York between publishing interests and the officials of the respective control authorities it was claimed that American publishers had not yet reduced their consumption by 10 per cent, though progress had been made in that direction. Emphasis was also laid on the fact that in addition to newsprint, Canada had agreed to deliver to the United States during 1943 1,550,000 cords of pulpwood and 1,278,000 tons of wood pulp.

## Henchley Envelope Co. Moves

The Henchey Envelope Company have moved their office and warehouse to larger quarters at 133 West 24th St. New York, N. Y. The new telephone number is WAtkins 9-0391.

## New Softness Tester for Tissue

The characteristic of softness of facial and other tissue papers is a property which may be measured with a new tester developed by the Williams Apparatus Company of Watertown, N. Y.

The procedure of testing softness is simple—e.g.,

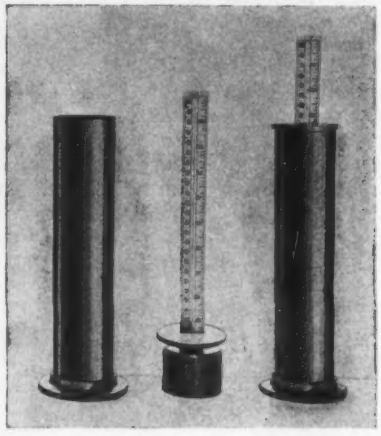


Fig. 1

10 2-ply specimens of facial tissue are placed loosely in the cylinder (Fig. 1), after which the weight (made to exert a dead-weight pressure of 50 grams per square centimeter) is gently lowered into the tube, then the reading is taken from the scale after the weight has come to rest.

## Plan Superintendents Meeting

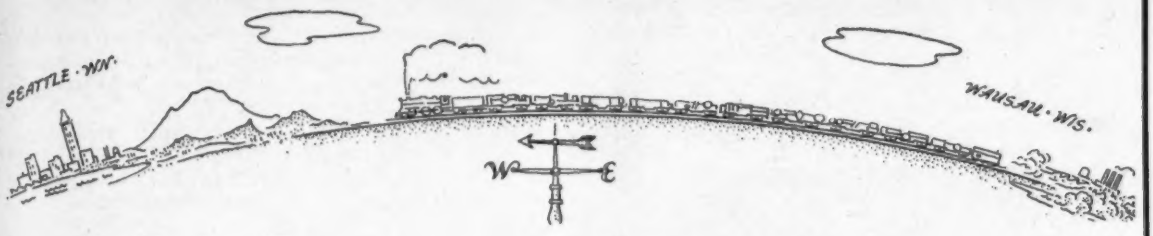
The feature of the 24th annual convention of the American Pulp and Paper Mill Superintendents Association which will be held on June 15-17 at the Commodore Hotel in New York City, will be the discussion of problems facing the superintendents and key operating men because of the war.

Tentative plans are now being made for the convention to include addresses by outstanding authorities on the problems of manpower, pulp wood, pulp and other materials, and the new war uses for paper, paperboard, and converted paper products. Included in the discussion of manpower will be the experience of the superintendents concerning the employment of women, the training of new employees and the building of workers' morale.

At the group meetings which will be held during the superintendents convention, it is planned to have papers presented and specific questions and answers about practical pulp and paper making subjects.

One of the social features of the superintendents convention will be the "Get-Together Party" which will be held immediately before the banquet on Wednesday night, June 16. Everyone is invited to attend this "Get-Together Party," especially the ladies. The wives of the officers of the superintendents association will officiate at the tea table. The allied industries will be "hosts" at this "Get-Together Party" which will afford an opportunity for everyone attending the convention to meet at this pleasant social occasion.

President Keeth announced that the board of trustees had decided not to hold the proposed exhibit of paper in connection with the June Convention.




# PULP BLEACHING MOVES WEST...

## and Acquires New Associates

**REORGANIZATION of Pulp Bleaching Company and its association with Webster-Brinkley Co., Seattle, brings into combination a unique background of process experience, modernized manufacturing facilities, and a war-proven capacity to engineer tough jobs and get them done in a hurry.**

Pulp Bleaching Company, formerly of Wausau, Wisconsin, has been the leading specialist in equipment for cellulose purification and related processes for the past twenty years. It has made installations in seven countries, having a capacity of over 10,000 tons per day, handling every type of fibre from which pulp is made. All of the present United States supply of wood cellulose for explosives, and a large part of the British Empire supply, is made in equipment designed and built by this Company.

Raymond P. Hill, sole owner of Pulp Bleaching Company since 1933, has now associated with himself in the ownership George Gunn, Jr., President of Webster-Brinkley Co., Seattle, and Thomas J. Bannan, Vice-President of Webster-Brinkley Co. and Executive Vice-President of Western Gear Works, Seattle and Los Angeles, Pacific Gear & Tool Works, San Francisco, and Pacific Gear Works, Los Angeles.

**When we have won the war, Webster-Brinkley Co. will manufacture for Pulp Bleaching its expanded line of process equipment. For the duration, every effort will be made to supply necessary replacement parts to users of Pulp Bleaching equipment having adequate priority status.**

Webster-Brinkley Co. has made an outstanding record in handling a number of tough, critical war jobs with impossibly short delivery schedules and has been awarded both the Maritime "M" and the Army-Navy "E". They were recently entrusted with the design of a special type of steering gear for combat ships not previously made in this country, and have made many other notable engineering contributions to the war program.

*These combined resources, sharpened and toughened by our war effort, will be available to the pulp industry when Peace comes. Perhaps, you have a problem you would like to have us begin thinking about, even though its execution may have to go on the waiting list.*

## PULP BLEACHING COMPANY

**651 Alaska Street • Seattle, Washington**

**MAIL ADDRESS: P. O. BOX 3127**

## Lagerloef Celebrates Anniversary

The Lagerloef Trading Company, Inc., 52 Vanderbilt avenue, New York, is celebrating its 25th anniversary this year. Col. Hans Lagerloef has been president and treasurer of the concern since its organization. The Lagerloef Trading Company was formed January 1, 1918 and was succeeded by the

COL. HANS LAGERLOEF

present corporation, the Lagerloef Trading Company, Inc., on July 2, 1918. Through the efforts of the company and the corporation the position of Finland as a supplier of high quality wood pulp in the United States was firmly established.

Col. Hans Lagerloef was made a commander of the White Rose of Finland in April, 1939, in recognition of his constant efforts to establish a practical Scandinavianism in the United States. At a brilliant function on April 26, 1940, at the old Seventh Regiment armory in New York, he was made an honorary colonel of the 107th Infantry, New York National Guard.

## Changes Name to Dixie Cup Co.

CHICAGO, Ill., April 19, 1943.—Announcement was made here today of the formal change of name to Dixie Cup Company following a vote at the annual stockholders meeting of the Dixie-Vortex Company. The Dixie Cup Company will continue production of Vortex cone cups, as well as hundreds of Dixie Cup shapes and sizes. The Dixie-Vortex Company and subsidiaries, which recently reported a 1942 net income, after taxes, of $927,552, was the result of a merger in 1936 of The Individual Drinking Cup Company of Easton, Pa., and the Vortex Cup Company of Chicago, Ill.

## New Racquette Item Introduced

The Racquette River Paper Company is getting good reception for its new market paper, a 40-lb. basis paper in melon color, plain or striped and which has been given a special process treatment to shed water or blood. The new paper is known as "Mello Seal," a medium priced all-around usage paper both odorless and tasteless.

## Carl Magnus Speaks at Wausau

Problems of the paper manufacturing industry include a downward trend in profits and the shrinking supply of pulpwood, according to an address made by Carl Magnus, general manager of the Wausau Paper Mills Company, Brokaw, Wis., to the Rotary club at Wausau, Wis., last week. He said that in 1941 production was an all-time high of 17,300,000 tons and for the last quarter of 1941 and the first quarter of 1942 the industry operated at the rate of 16,000,000 tons per year.

Mr. Magnus enumerated articles being developed now to fill the war demands and declared that these will be manufactured on an extensive scale after the war. "These products are not to be considered purely as 'war babies,' but in quality, cost and utility many of them will continue as peacetime products, opening up a completely new paper market," he said.

The speaker also predicted that after the war, the paper industry "will come into an extended period of large volume and general prosperity," following a readjustment period lasting from six months to a year. "We are doubtless headed for a new era of construction materials in which paper products will play an important role," he added. "A substantial portion of future profits in our industry will develop from the utilization of the material now going into sewers and streams," Mr. Magnus asserted, explaining that for every ton of sulphite pulp produced, two tons of raw material are going to waste.

## E. M. Sergeant Opens New Plant

The E. M. Sergeant Pulp and Chemical Company, Inc., Empire State Building, New York, announces the establishment of a manufacturing subsidiary entitled Sergeant Chemical Company, and located at 120 Lister avenue, Newark, N. J. Telephone Market 2-5346.

The new company provides ample warehousing and manufacturing facilities readily accessible to trucks and water transportation. The location affords a bulkhead on the Passaic River and a dead-end railroad siding.

The acquisition by the Navy of the Company's former plant at Port Newark necessitated the establishment of this new and permanent unit which will enable the firm to render more efficient service than any time in the past.

## W. Dempsey, Jr. Is Pilot Student

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 26, 1943—William Dempsey, Jr., on the staff of the Century Paper Company, in the shipping room, has completed his course in Naval Aviation at Wesleyan University and is now at the Flying Field at Davenport, Iowa, as a pilot student. He is the son of William Dempsey, of the sales department of the Century Paper Company.

## Box Makers Try To Farm Out Work

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 26, 1943—In New England a number of the large box manufacturers have been trying to farm out work among their competitors, but with not so very great success.

The board situation during the last two weeks has tended to be more tight than it had been previously, instead of easing, as had been hoped.

# FINANCIAL NEWS

### New York Stock Exchange

High, Low and Last for Week Ending April 24, 1943

STOCKS

| | High | Low | Last |
|---|---|---|---|
| A. P. W. | 2½ | 2½ | 2½ |
| Armstrong Cork Co. | 35 | 34½ | 34⅞ |
| Celotex Corp. | 14 | 13¾ | 13⅞ |
| Celotex Corp., pf. | 90 | 89½ | 90 |
| Certain-Teed Products Corp. | 6⅜ | 5⅜ | 6 |
| Certain-Teed Products Corp., pf. | 60½ | 56⅜ | 59 |
| Champion Paper & Fibre Co. | 20 | 19⅞ | 20 |
| Champion Paper & Fibre Co., pf. | 105 | 104 | 105 |
| Congoleum Nairn Co. | 21¾ | 21¼ | 21⅝ |
| Container Corp. of America | 22⅜ | 20⅜ | 22⅜ |
| Continental-Diamond Fibre Co. | 15 | 14 | 14 |
| Crown-Zellerbach Co. | 14⅛ | 13⅜ | 14⅛ |
| Crown-Zellerbach Co., pf. | 91½ | 90½ | 91½ |
| Dixie-Vortex Co. | 13⅞ | 13⅜ | 13¾ |
| Dixie-Vortex Co.—A | 39⅞ | 39¼ | 39⅞ |
| Flintkote Co. | 18⅜ | 17⅜ | 18⅛ |
| Flintkote Co., pf. | 104 | 104 | 104 |
| Robert Gair | 4 | 3⅛ | 3⅞ |
| Robert Gair, pf. | 14 | 12¾ | 14 |
| International Paper Co. | 12⅛ | 11 | 11⅞ |
| International Paper Co., pf. | 59 | 57 | 58½ |
| Johns-Manville Corp. | 81½ | 80½ | 81 |
| Johns-Manville Corp., pf. | 131¾ | 131¾ | 131¾ |
| Kimberly-Clark Corp. | 30¾ | 29½ | 29½ |
| MacAndrews & Forbes | 27⅜ | 27½ | 27⅜ |
| MacAndrews & Forbes, pf. | .... | .... | .... |
| Masonite Corp. | 33¾ | 33 | 33¾ |
| Mead Corp. | 10 | 9¼ | 9¾ |
| Mead Corp., pf. A—6% | 83¼ | 82½ | 83 |
| Mead Corp., pf. B—5½% | 73 | 72 | 73 |
| Paraffine Companies, Inc. | 41½ | 41½ | 41½ |
| Paraffine Companies, Inc., pf. | .... | .... | .... |
| Rayonier, Inc. | 13 | 12⅝ | 13 |
| Rayonier, Inc., pf. | 29¼ | 29 | 29¼ |
| Ruberoid Co. | 24 | 23 | 24¾ |
| Scott Paper Co. | 42¼ | 41 | 42 |
| Scott Paper Co., pf. | 112 | 112 | 112 |
| Sutherland Paper Co. | 29½ | 29⅜ | 29⅜ |
| Union Bag & Paper Corp. | 10⅜ | 10 | 10 |
| United Paperboard Co. | 5⅜ | 5¼ | 5¼ |
| U. S. Gypsum Co. | 67⅝ | 66 | 67 |
| U. S. Gypsum Co., pf. | 181½ | 181½ | 181½ |
| West Virginia Pulp & Paper Co. | 15½ | 14¾ | 15¼ |
| West Virginia Pulp & Paper Co., pf. | .... | .... | .... |

BONDS

| | | | |
|---|---|---|---|
| Abitibi Pulp & Paper Co. 5s '53 | .... | .... | .... |
| Celotex Corp. 4½s '47 | 102 | 101 | 101 |
| Certain-Teed Products Corp. 5½s '48 | 99⅛ | 97¼ | 99⅛ |
| Champion Paper & Fibre Co. 4¾s '50 | .... | .... | .... |
| International Paper Co. 6s '55 | 106¾ | 106 | 106 |
| International Paper Co. 5s '47 | 104 | 103¾ | 103¾ |
| Mead Corp. 3¼s '53 | .... | .... | .... |
| West Virginia Pulp & Paper Co. 3s '54 | 103⅜ | 103¼ | 103¼ |

### New York Curb Exchange

High, Low and Last for Week Ending April 24, 1943

STOCKS

| | High | Low | Last |
|---|---|---|---|
| American Box Board Co. | 7 | 6⅞ | 7 |
| Brown Co., pf. | .... | .... | .... |
| Great Northern Paper Co. | 33 | 33 | 33 |
| Hummel-Ross Fibre Corp. | 5⅛ | 5 | 5 |
| National Container Corp. | 10¾ | 10⅝ | 10¾ |
| St. Regis Paper Co. | 2⅝ | 2½ | 2⅝ |
| St. Regis Paper Co., pf. | 132 | 129 | 132 |
| Taggart Corp. | 4⅛ | 3⅞ | 3⅞ |

BONDS

| | | | |
|---|---|---|---|
| American Writing Paper Co. 6s '61 | 92½ | 92 | 92½ |

## Brown Co. Earnings Lower

The Brown Company for the year to November 30, reports a net profit of $1,071,087, compared with $1,484,353 in the year to November 30, 1941. Brown Corporation, a wholly-owned Canadian subsidiary, had net profit of $1,230,779, against $1,556,928. Consolidated sales were $33,467,085 and $32,198,400 in the respective years. The past year was the first for the reorganized company under the board of directors, and Henry P. Kendall, chairman, in his statement to stockholders says the company voluntarily repaid $1,660,056 of the $4,500,000 borrowed from the Reconstruction Finance Corporation, and further reduced the balance to $2,592,370 by payments aggregating $247,574 under the terms of the loan.

## Kimberly-Clark Nets $3.11

The Kimberly-Clark Corporation, Neenah, Wis., reports net profits on common stock totalling $1,517,736.84 for the 12-month period ending March 31. This was equal to $3.11 per share, compared with $4.88 for the comparable period in 1942.

The first quarter of 1943 showed a profit of 69 cents per share, compared with 83 cents in the first quarter of 1942.

Net sales for the period, exclusive of interplant sales, totalled $41,477,599.44 and cost of sales was $33,716,368.69. Net income before federal taxes and reserves totalled $4,529,666.31, and $2,445,000 was provided for federal taxes.

Net income before provision for preferred dividends was $2,115,516.85. The reserve for these dividends was $597,780.

## Johns-Manville Nets $1.23

The Johns-Manville Corporation and subsidiaries for the quarter to March 31, reports net earnings were $1,087,119, or $1.23 for each share of common stock, against $696,335, or 77 cents a share, last year. Sales were $23,752,896, against $21,883,773. Lewis H. Brown, president, attributed gain in earnings in part to change in excess profits tax base and in part to the passage of new tax laws by United States and Canada. Post-war refunds were deducted from 1943 first quarter taxes.

## Hummel-Ross Earns 10 Cents

The Hummel-Ross Fiber Corporation for the twelve weeks to March 20, reports net profit after $73,122 income and excess profits taxes was $48,748, or 10 cents each on 391,706 common shares after preferred dividend requirements, against $110,489, or 26 cents a common share, for twelve weeks to March 21, 1942; net sales, $953,171, compared with $1,378,822.

## Sutherland Profits Off

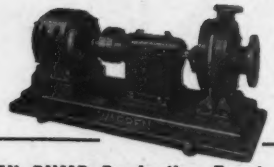
The Sutherland Paper Company for the March quarter reports a net profit after taxes and $30,000 contingency reserve was $183,637, or 64 cents a common share, against $244,194, or 85 cents a common share last year, when contingency provision was $100,000.

## National Gypsum Nets 8 Cents

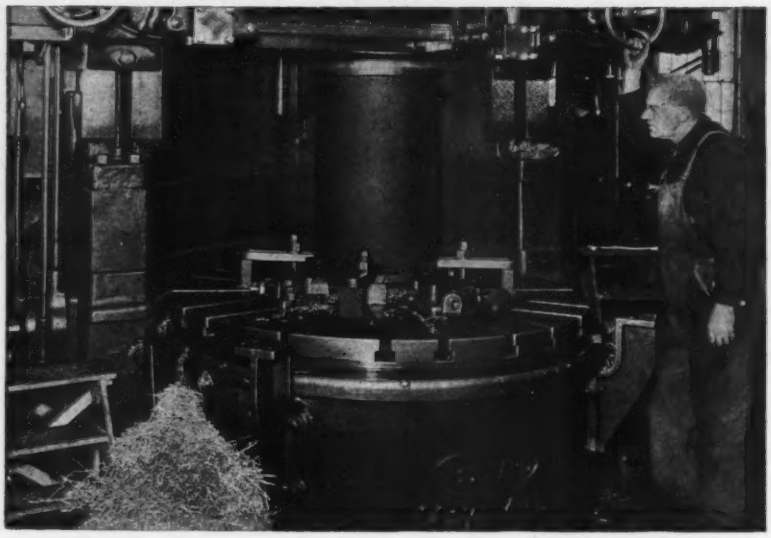
The National Gypsum Company for the March quarter, reports net earnings, of $179,283, against $173,362 last year. Earnings equaled 8 cents a share on the common stock for both periods.

## A. W. P. Co. Earns Less

The American Writing Paper Company for the March quarter reports a net income of $54,131, compared with $141,587 in the first three months of 1942.



**Fighters on the WARREN PUMP Production Front . . . No. 1 of a Series**



**"BIS" MANNED THIS "BATTLE STATION" ALL THROUGH THE LAST WAR, TOO . . .**

"Bis" Gould has been a skilled pump maker—at the Warren Steam Pump Company, Inc.—for 40 years. All during World War I, "Bis" operated the same vertical boring mill (shown above), which, today, he is now using to help turn out Warren Pumps needed to help bring the present world tyrants to their knees.

There is no compromise in the quality and skill of Warren workers . . . no compromise in the quality of Warren Pumps. Whether these are used for gruelling 24-hour duty in war plants . . . or for active duty with the United States Navy, Coast Guard, or Merchant Marine, every piece of Warren equipment can be counted on for efficient, reliable, and economical performance.

While Warren production is now largely devoted to vital defense work, we are still in a position to furnish needed repairs in accordance with War Production Board rulings.

**WARREN PUMPS**

WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS


## Wartime Experiments

Numerous interesting experiments have been carried out under pressure of wartime conditions by the Mechanical Department of the Powell River Company. Recently, under the direction of Ross Black, mechanical superintendent, the firm engaged in experiments designed to produce tires for trucks used around the plant.

To offset the shortage of rubber tires and to provide substitutes for wharf jitneys and grinder room trucks the department tried out rubber belting. This was wrapped on a steel rim, bound with wire and studded with nails to prevent creeping. The entire composition was then vulcanized for about twelve hours, after which the wire and nails were removed. The tires were tried out on the wharf lift trucks and proved very successful. Further experiments are being conducted with other equipment.

## Improved Blender

A patent for an improved double cone blender, which solves the problem of complete and rapid mixing of dry powders with a tendency to agglomerate in the mixing process, has been issued to H. K. Porter Company, Inc., Pittsburgh, Pa., manufacturer of process equipment and industrial locomotives. The improved blender, under U. S. patent serial number 413113, incorporates a device within the cone which prevents any two particles of material following the same path and breaks up agglomerates. In batches run in 15 minutes, uniformity does not vary more than 1%, the Company reports.

The patent specification states that, "Heretofore in using double cone blenders, great difficulty has been had in properly and completely mixing some dry powders together, particularly where a small amount of one powdered material was to be mixed with a relatively large amount of another powdered material. It has been found that grains of the material forming the smaller portion of the final mixture tend to agglomerate. Consequently, the material was not evenly distributed throughout the mixture."

The patented improvement overcomes this situation; and, in addition, enables the processing of dry powders affected by dampness without agglomeration and increases the list of powders which can be successfully processed by the double cone blending method, according to the Company.

## Hammermill Gets Second Army-Navy E

The War Department has granted the Army-Navy "E" Production Award to the Hammermill Paper Company of Erie, Pennsylvania, for a second time, which gives the Erie concern the right to add a white star to its "E" pennant in recognition of continued excellence in the production and delivery of paper.

Action of the War Department in renewing the award to the men and women of Hammermill was communicated to Norman W. Wilson, President and General Manager, in a letter from Robert P. Patterson, Under Secretary of War.

"I am pleased to inform you that you have won for the second time the Army-Navy Production Award for meritorius services on the production front," Mr. Patterson's letter said.

# CONSTRUCTION NEWS

*Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Production Board. The status of projects reported herewith under the provisions of the order is not known.*—EDITOR.

**Grand Rapids, Mich.** — The American Box Board Company, manufacturer of box boards, test liners, etc., has plans under way for alterations and improvements in mill building at 470 Market street, S.W., covering primarily interior work. It is expected to award a number of separate contracts for program at early date. Work will form part of a development project now in progress at plant. No estimate of cost announced. The Commercial Testing and Engineering Company, 307 North Michigan avenue, Chicago, Ill., is engineer.

**Park Ridge, N. J.**—Mittag & Volger, Inc., manufacturer of carbon papers and kindred products, has plans in preparation for new plant building on local site on Maple avenue. It will be one and two-story, reported to cost over $40,000, including equipment, and will provide considerable increase in present capacity. Bids are scheduled to be asked at early date on general erection contract.

**Hamilton, Ohio** — Champion Paper and Fibre Company, manufacturer of coated and other paper stocks, container board, etc., is running on a capacity schedule at its pulp mills, with current rate of output, it is said, in excess of that of a year ago. Paper mills of company are on a basis of 85 to 90 per cent output as compared with last spring and owing to WPB restrictions, company is limited in the number of grades of paper to be produced. Current rate of output of container board is being maintained at a good level, to meet the increased demand for this product.

**Brookville, Ind.** — Fire recently damaged a portion of local mill of the Williams Felt and Paper Company, manufacturer of roofing papers, roofing felt, etc. a large part of loss, reported over $85,000, was centered in a main storage and distributing building at mill. Plans for rebuilding are said to be under advisement.

**Cleveland, Ohio.** — The Industrial Rayon Corporation, West 98th street and Walford avenue, manufacturer of viscose rayon products, has work under way on new one-story and part basement addition to mill, previously referred to in these columns, with brick superstructure now well advanced. It will be about 35 x 114 feet, equipped for considerable increase in present capacity. Cost is reported in excess of $80,000, including equipment. The George A. Rutherford Company, 2725 Prospect avenue, Cleveland, has the general erection contract. Wilbur Watson and Associates, Inc., 4614 Prospect avenue, are architects and engineers.

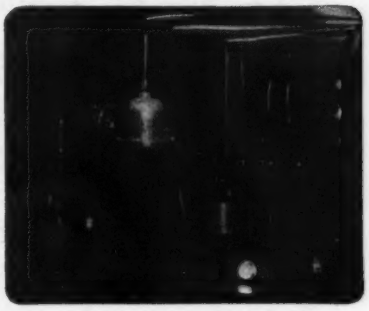
**St. Louis, Mo.**—The Hammer Dry Plate and Film Company, 3533 Ohio avenue, manufacturer of photographic films, papers, etc., has approved plans for improvements at plant, including certain reconstruction work. Entire project is reported to cost close to $50,000, including equipment. General building contract has been awarded to A. H. Haeseler Building & Contracting Company, 2346 Palm street, St. Louis, and work is being placed under way. Lou Menges & Associates, 4875 Easton street, St. Louis, are architects.

**Kalamazoo, Mich.**—A paper and pulp storage building of Allied Paper Mills, at 635 West Ransom street, was damaged recently by fire, with loss limited to about $5,000. The structure is occupied under lease from the Union Trim & Lumber Company, owner.

**Hopewell, Va.**—The Hummel-Ross Fibre Corporation, manufacturer of kraft and other paper stocks, paper boards, etc., is holding at a high production schedule at its mills, with large part of output being for Lend-Lease and other essential Government account. It is said that close to 90 per cent of output is being diverted for such service. It is expected to hold to present production basis for an indefinite period.

**Lewistown, Pa.**—The American Viscose Corporation, Wilmington, Del., manufacturer of viscose rayon products, has work under way on converting about one-half of production capacity at its Lewistown mill for the manufacture of material of increased strength for military service. Special equipment will be provided in different departments for this purpose.


THIS REGULATOR VARIES STEAM PRESSURE

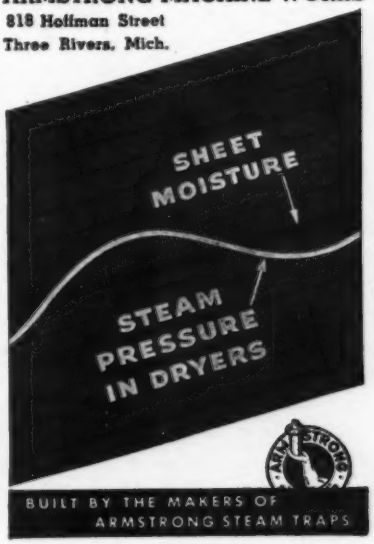


to maintain UNIFORM Sheet Moisture Content

BY automatically varying the pressure, and hence temperature, in your driers, the Armstrong-Stamm Moisture Control System compensates for differences in moisture content of the wet sheet and provides a *uniformly* dry sheet. This System has produced outstanding results in many mills. It can do the same for you.

If you are interested in learning about this unique pressure regulator that provides not a *uniform pressure*, but a *controlled pressure variation*, write for literature today.

ARMSTRONG-STAMM PAPER MILL ENGINEERING DIVISION
ARMSTRONG MACHINE WORKS
818 Hoffman Street
Three Rivers, Mich.



# PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger

EDITOR

Vol. 116 April 29, 1943 No. 17


## COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Twenty-fourth Annual Convention, Commodore Hotel, New York, June 15-17.

## BALANCING PRODUCTION

In a long, hard war such as in the global conflict now being waged, the all-out effort must include a proper balance between the production of strictly war goods and adequate supplies for civilian uses. For some time it has been apparent that the government war agencies have underestimated the quantity and variety of consumers goods essential to maintain the highest morale of the people on the home front. Without this high morale and complete confidence in the Administration's efforts in the conduct of the war, it does not appear possible to reach maximum results to win the war as speedily as practicable. Measures for meeting the necessary needs of the civilian population while the war continues will be surveyed at the thirty-first annual meeting of the Chamber of Commerce of the United States, to be held at the Waldorf-Astoria Hotel, New York, April 27-29.

While the meeting has been designated a "Business War Council," it will include questions relating to civilian supplies, price controls and problems of small business. Representatives of the Office of Price Administration, Food Distribution, the Office of Civilian Supply and business men representing different lines of business and industry, will participate in the discussion. The special committee of the Chamber states in its report that, "The war is daily making the plight of the home front more precarious. Delay in recognizing the fundamental necessity of maintaining a sound wartime civilian economy, and in taking realistic measures to place the home front on an efficient and healthy basis, presents the danger of prolonging the war unnecessarily and of causing greater casualties on our military fronts. Policies relating to the home front have been confusing and conflicting. Concentration of energies on expansion of war production has resulted in almost complete neglect of the civilian economy. Effective organization of the civilian economy is imperatively needed to forestall complete disruption of morale and to preserve the physical strength and spirit of our citizens . . . As to manpower problems, the effectiveness of the war effort will be decreased unless manpower resources are assured for non-war purposes. Government agencies which have proceeded to classify industries arbitrarily as non-essential have followed wrong and misleading principles."

The failure to recognize the essentiality of the paper industry when the many uses of paper are so widely known and used by millions of persons, is one instance of government hindsight. In reference to the prospects for the paper industry the American Paper and Pulp Association points out that, "The past thirty days has seen a very marked revision of opinion, particularly in emergency war agencies, with respect to the essentiality of paper and paper products in the war economy. It is now realized by all of the new government agencies dealing with the industry, with the possible exception of the War Manpower Commission, that paper is essential, in the main, and the problem is one of production, under difficult conditions. If production is curtailed, because of shortages of raw materials, then it is probable that governmental action may be forthcoming directing the use of raw materials to what they may consider the more essential grades of paper. For this reason it is of particular importance that the industry as a whole, and individual companies, as a matter of prudent management, give every consideration to the future outlook in this respect, including the increasing of available supplies of secondary fibers and possible substitution it furnishes."

Referring to manpower the A. P. P. A. letter to the industry states in part that, "Along with other industries, the labor situation in the pulp and paper industry has become increasingly difficult. In fact in critical areas it has become almost an impossible one. This situation has been the subject of discussions with the War Manpower Commission and more particularly with the Critical Industries Committee of that Commission. It appears that their conclusions will be based upon two factors: First, the essentiality of the product in the war economy and, secondly, whether or not amounts in excess of requirements are being produced . . . It is believed that within the next week an extension of the list of essential paper items will be approved . . . It has been our position that the entire industry should be declared essential."

In summarizing the pulpwood situation the association's letter says in part: "Acute shortages of woods labor will beyond a doubt cause shortages of pulpwood supplies and, in turn, wood pulp . . . The

maximum use of furnishes other than chemical pulp by mills capable of using such furnishes is urgently required . . ., Our information indicates that the requirements for paper and paper board considered necessary by the Office of Civilian Supply for 1943 will exceed 16,000,000 tons. If these requirements are in fact met, all the ingenuity and skill of the industry, as well as a high degree of cooperation on the part of all agencies, will be necessary . . . There are two encouraging factors in the entire picture, the first being the belated recognition of the necessity for paper in our military and civilian economies, and secondly, the increasingly cooperative attitude of most of the governmental agencies dealing with our problem."

## Assistant Dean Leavitt Retires

Assistant Dean Clyde Leavitt of the New York State College of Forestry, Syracuse University, will retire at the end of six months sabbatical leave which begins May 1, according to announcement by the Forestry College.

Among his accomplishments in office was the reorganization of the College employment service for placing graduates and aiding students in obtaining summer jobs. As chairman of the Graduate Committee he was advisor and registrar of graduate students. During the past ten years he had general supervision over many permanent improvement on the campus and college properties constructed by the various work relief agencies, including the CCC, TERA, FERA, CWA and WPA.

## Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

| Current Weeks—1943 | | Corresponding Weeks—1942 | |
|---|---|---|---|
| March 13 | 89.9 | March 14 | 101.9 |
| March 20 | 88.4 | March 21 | 103.6 |
| March 27 | 89.7 | March 28 | 103.4 |
| April 3 | 88.2 | April 4 | 102.2 |
| April 10 | 90.2 | April 11 | 98.9 |
| April 17 | 89.9 | April 18 | 100.8 |

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July |
|---|---|---|---|---|---|---|---|
| 1942 | 104.5 | 103.9 | 102.9 | 100.4 | 95.3 | 87.4 | 75.8 |
| 1943 | 87.5 | 88.9 | *89.3* | .... | .... | .... | .... |

| Year | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|
| 1942 | 80.8 | 82.8 | 90.6 | 86.9 | 80.1 | 90.4 |
| 1943 | .... | .... | .... | .... | .... | .... |

COMPARATIVE YEARLY SUMMARIES

| | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 |
|---|---|---|---|---|---|---|---|---|
| Year to Date.. | 76.8 | 89.6 | 67.3 | 79.9 | 85.0 | 89.9 | 103.1 | *88.7* |
| Year Average.. | 80.4 | 79.8 | 71.5 | 83.4 | 85.6 | 97.4 | 90.4 | ... |

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1937 | 83 | 89 | 89 | 91 | 88 | 80 | 69 | 77 | 72 | 70 | 57 | 47 | 75 |
| 1938 | 56 | 63 | 63 | 60 | 60 | 59 | 59 | 60 | 70 | 73 | 67 | 61 | 64 |
| 1939 | 65 | 73 | 76 | 74 | 69 | 73 | 68 | 77 | 82 | 91 | 88 | 77 | 77 |
| 1940 | 78 | 75 | 74 | 76 | 82 | 85 | 77 | 79 | 78 | 85 | 82 | 77 | 78 |
| 1941 | 81 | 88 | 89 | 89 | 91 | 94 | 92 | 98 | 95 | 99 | 98 | 90 | 92 |
| 1942 | 102 | 101 | 101 | 95 | 82 | 72 | 68 | 75 | 76 | 81 | 82 | 77 | 84 |
| 1943 | 86 | 88 | *94* | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

Week ending Mar. 13, 1943—93
Week ending Mar. 20, 1943—92
Week ending Mar. 27, 1943—95
Week ending Apr. 3, 1943—95
Week ending Apr. 10, 1943—95
Week ending Apr. 17, 1943—96

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

*Detail of "O" seam, magnified about 7-3/4 times.*

A Fourdrinier wire can be *only as good as it "seams"*. Precision workmanship, adequate equipment and a resolve to do a continuously better job have gone far to advance the technique of seaming wires. Lindsay puts forth every effort to devise a seam with drainage characteristics approaching those of woven cloth and yet not sacrifice strength or flexibility. We aim to make every seam sound, uniform, unvarying in construction. Many a seam has in it 20,000 metal-to-metal joints which must be finished with almost incredible accuracy . . . Will the achievement of tomorrow be as undreamed-of as today's reality was a decade ago?

**THE LINDSAY WIRE WEAVING COMPANY**
*Serving the Paper Industry Since 1903*
**14001-14299 ASPINWALL AVE. • CLEVELAND, OHIO**

# The *UFORMITES* meet Army and Navy specifications

WHEN there's fighting to be done... TNT and water don't mix. That's why weather-proof paperboard containers are being used in the shipment of this vital war material.

***No New Equipment Needed***

Using the UFORMITES . . . urea formaldehyde type resins supplied in liquid or dry powder form . . . you can manufacture both corrugated and solid fibre board meeting Army and Navy specifications for weather-proof containers. You need no special equipment . . . need make no great change in production procedure.

***Years of Research***

Developed by The Resinous Products & Chemical Company, these synthetic resins are a natural outgrowth of years of research and manufacture of resin adhesives being used today in plywood airplanes, gliders and landing barges.

***Send for Data***

Get the complete facts about the UFORMITES. Write today for technical literature and samples.

**THE UFORMITES FOR PAPER TREATMENT**

**UFORMITE 430 AND UFORMITE 500** for resin fortified glues for construction of weatherproof corrugated and solid fibreboard shipping cases.

**UFORMITE 449** for improving the wet strength of paper by tub sizing.

**UFORMITE 412-A,** a urea formaldehyde and **UFORMITE QJ-99,** a melamine formaldehyde resin for laminating.

## THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY

Edited by R. G. Macdonald, Secretary

# Relation of Paper to Printing on Multicolor High-Speed Presses*

By L. W. Claybourn[1]

**Abstract**

*A discussion is given of paper as a foundation of printing and the complex problems of printing on various papers.*

There is no subject of greater importance to the graphic arts industry than that of paper. To adequately describe paper, in all of its ramifications of usefulness, would require volumes and would tax the brains of many people. We will consider only papers that are in common use in producing multicolor printing on high-speed rotary presses, known as letterpress or relief printing.

## Selection of Paper

The principal items in these papers embrace fine enamels or coated stock, English finish or dull coats, machine-finished, super calendered, book, and coated label papers, and various kinds of cover stock. Boxboard, which deserves no small mention in multicolor production, is also considered.

Paper is the foundation of printing and presents many complex problems to the printer. This is due largely to the fact that often the printer has no choice in the matter. He often is furnished with paper unsuitable to the job and therefore does not yield the expected or desired result. Too often buyers of printing do not give paper the consideration it rightfully deserves in their planning. They decide on a layout and typography, plan their art and order illustrations, and, lastly, elect to print on this or that kind of paper, price being a big factor, with little or no regard as to whether or not the paper of their selection will yield the job of their expectancy.

To correct this bad practice, let us put this in reverse. Paper, being the basic factor in any printed job, considering it from either price or quality standpoint, should be chosen first; secondly engravings, layout, art, and typography.

It is of extreme importance to submit the selected stock to your engraver, who can decide with intelligence the most suitable specifications as to screen, line, flat poster printing, or in combination, that can be used in making illustrations for printing on that particular stock. If this procedure were in common practice, there would be fewer headaches and disappointments in the printed results.

For the past few years our large publications have written special paper specifications to be followed, and they furnish paper to the photoengravers for proofing purposes, including their standards of inks to be used. But there is yet a vast amount of educational work to be done. The mere writing of specifications does not answer our problem.

## Photoengravings

Too little is yet known as to what is meant by multicolor printing. Many photoengravers have never seen a multicolor press and have little or no knowledge of the true methods of multicolor printing. The specifications may read "proof wet". This means little, in a true sense, to multicolor printing.

Too few engravers are equipped to proof multicolor, where each and every plate transfers the ink to a common position on one tympan or one impression cylinder. Instead, they make proofs before the ink is set or dried, and each impression or color is transferred from their plates to a separate tympan or impression cylinder for each color. It must be understood that in proofing colors separately, whether or not the ink is allowed to dry between proofings, each color plate could be relieved or accentuated to get a result without producing a faithful proof of the etched plate. This treatment cannot be applied in multicolor printing. The plate itself must be etched correctly, making it unnecessary to modify the plate as it is etched. The multicolor printer must print quantities from these same plates, attempting to get the same result using only one impression cylinder, regardless of methods used in producing the proof which he is trying to follow or match.

Multicolor methods print exactly the tone values as etched in the plates and do not lend to individual treatment of each plate. This method of printing is dependent upon strong colors that can be used sparingly and yield proper tone values, as are etched into plates, plus inks made so that they have the proper affinity for each other, trapping, superimposing to yield the many secondary colors seen in all colored illustrations.

Plates can and will be made in a more economical and simpler way than they are now made if and when the industry that furnishes us this important item will make a study of multicolor printing and more thoroughly understand the problems involved.

This is a technical meeting about paper. What has all this plate talk to do with paper? Everything! Paper is often blamed for poor results in printing because of the use of other materials not compatible with the

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Executive Vice President, J. W. Clement Co., Buffalo, N. Y.

particular sheet of paper selected for the job. I repeat suitable plate screens—art, typography, must be selected to suit the stock. Certainly we can print beautiful poster effects on papers that would not be suitable for fine screen or color process work.

The point I wish to make is that if intelligent planning took place prior to the printing of a job, wherein all materials were tested to acertain their fitness for the purpose intended, we would have an ideal setup.

### Other Factors in Printing

Another element which goes hand in hand with paper to determine the failure or success of printing. Printing ink plays a major part in the success of a printed job, and many effects are obtained through the compatibility of ink and paper being used.

Delicate pastel shades are often required, and the cleanness of the sheet of paper plays a part here. Special coatings are put on paper to permit semi-gloss or full-gloss printings. If the wrong sheet of paper were selected, you would never get the required result. By the same token, an ink that works beautifully on one sheet might tear the face off of another sheet of paper because of viscosity and tack.

Printing inks must be made suitable for the stock to be printed. We often proof a job on several different papers, to acertain which paper will yield the best result. We use an ink specifically matched and made for the job, and it is hard to believe that the same ink was used on these various papers, because of the extreme difference in appearance.

One paper will yield a beautiful finish, another paper will dry out dead and dull, another sheet may show a mottled effect because of paper formation, to say nothing of being off color—all printed from the same plate and the same batch of ink. The inks may trap beautifully on one sheet of paper and not trap at all on another grade, but to look at these two sheets of paper, side by side, it would be difficult to make a choice until put to the actual printed test.

However, we must not become confused by the results obtained from this kind of test, where we use one ink for several kinds of paper, because, in all probability, an ink can be formulated to work very satisfactorily in conjunction with the paper making the poorest showing with the first ink used.

No one ink is formulated to give satisfactory results on all kinds of stock. There are, possibly, one hundred formulas for black ink to yield various results on various kinds of printing paper. When the printer attempts to print three and four colors and black simultaneously, quite naturally some serious problems arise.

If I were a paper manufacturer, I would have formulas of printing inks developed for me to meet every requirement of the papers I manufactured, whether it be for black and white or color printing. I would show on my papers what effects various printing inks would produce. Any modern well-equipped ink manufacturer could make these inks according to these formulas, which would be a big step toward standardization.

High-speed printing presses consume tons of paper every day, and the most successful and progressive paper manufacturers have been making every effort to acquaint themselves with the printer's methods and problems. The results of this cooperation have been far-reaching and gratifying, and I wonder if the printer realizes the problems of the paper manufacturer and the service he renders continually.

Assuming that everything is pretested, the desirable sheet of paper is selected and reaches the pressroom to go into production, now other problems may arise. The job in question was possibly figured at a certain speed of production and due to various conditions beyond the control of the average print shop, production is difficult to maintain. Usually the first cry you hear from the production department is "bad paper". Atmospheric conditions may be the sole cause.

The successful operation of feeding paper at high speed depends largely upon the nature of the stock, its condition and humidification which is seldom in uniform control. The nature of the job being printed is also a factor. Some stocks and some jobs can be fed into the press much faster than others. The automatic feeder is not the determining factor of speed. Conditions of paper and the nature of the job determine this.

For best operation, stock should be trimmed squarely, piled evenly on skids, stored and covered well, to prevent absorption of moisture. When edges of stock become wavy, the sheet has expanded, which will throw a belly into it, thereby developing wrinkles. Wrinkles may be more often caused by defective stock than by the mechanisms of feeder or press. Trouble often occurs in the middle of a run, after days of successful operation, caused by change in atmospheric conditions, etc.

Last and most important, we must not run the press faster than the stock can be successfully fed into it. The press will run at its geared capacity, but it will be found that the best average daily production can be obtained at a speed that will run continuously without tripoffs.

Some sheets of paper are limp and slow to handle; other papers are snappy, fast and full of life, and easy to feed mechanically. The mechanisms of the automatic feeder are flexible to meet these varying conditions.

The multicolor printing press is wholly dependent upon the various materials fed into it. The principal of these are good printing plates, properly formulated inks and suitable paper. The printing press coordinates these materials, and if they have been properly selected, it is reasonable to expect a satisfactory job. It goes without saying that due consideration must be given to many operations besides printing, namely, folding, trimming, binding, etc., and I might mention durability of paper used.

The J. W. Clement Co., Buffalo, N. Y., have a laboratory fully equipped to make tests and modify materials to meet exacting requirements. Through an arrangement with C. B. Cottrell & Sons Co., Westerly, R. I., we have also installed many processes and machines that are not used in conventional printing practice. We put these machines and processes to work to determine their fitness and value in commercial printing.

Time and space do not permit of any explanation in detail of these new developments, but we take pleasure in extending to you a cordial invitation to visit our plant, so that we may acquaint you with these new developments.

I pay great tribute to C. B. Cottrell & Sons, Co., with whom I am also associated, for the active part they are taking in this development in the interest of letterpress printing, and to the farsightedness of John D. Taylor, president of J. W. Clement Co., who realized the necessity of improvement for the printer of tomorrow.

# Packaging Requirements for Dehydrated Vegetables*

By J. R. Sanborn[1] and G. J. Hucker[2]


## Abstract

*There is urgent need for standardized and generally accepted methods of testing packages for bulk dehydrated vegetables. Definite requirements should also be established for water vapor permeability and for satisfactory performance in the protection of dry sawdust as a suggested substitute at high humidity levels; in withstanding the deleterious effects of high and low temperatures; in resisting water submersion; and resistance to impact or tumbling.*

*In determining the suitability of a package greater significance should be given to actual performance tests rather than to specifications based on any one type of material.*

*Those interested in the manufacture and fabrication of packaging materials should realize the need for more rugged types of protective packages. While a large majority of the sheets now available may be acceptable from the standpoint of laboratory tests, these materials are not sufficiently rugged to stand extremes in handling as required under Army conditions.*

*Certain types of paperboard (fiberboard) boxes and containers may prove definitely promising if dipping procedures can be perfected and suitable compounds used for this purpose are made available. A satisfactory dip, properly applied, should aid materially in enabling these containers to meet performance specifications.*

*The present investigation included a study of over 150 different packaging materials. When a long series of tests, increasing in severity, were applied to these products, less than 5 showed sufficient resistance to warrant their inclusion in the final tests on bulk-packing of dehydrated vegetables.*


The proper preservation of dehydrated foods is not a simple problem nor one which can be readily solved by providing elaborate packages. While the development of suitable packages is necessary as a means of insuring adequate protection of the contents under severe conditions of handling and storage, careful consideration of the requirements of the foods themselves is basically important. Past neglect of this approach, even in years of "peace and plenty," left us destitute of a reliable working basis with which to meet the demands of wartime emergencies satisfactorily and promptly.

## Plans of Investigation

In order to assist in securing basic information and data, a program of investigation was started early last year on the preservation and packaging requirements of dehydrated vegetables. This project is being carried out in the interests of the dehydration industry and agencies charged with the task of delivering overseas, nutritious, palatable, and well-protected foods. The work includes studies of dehydration from production through all stages of processing to packaging and storage, as reflected in the keeping quality and nutritional value of the final food products.

These studies include:

1. Varietal and maturity observations of vegetables.
2. Investigation of the influence of preprocessing procedures such as methods of blanching and time-temperature relationships.
3. Methods of preparing and handling the product for packaging and shipping, including loose or bulk packing and compressed vegetables.
4. Influence of packaging methods in protecting the vitamin content and general palatability of dehydrated foods.
5. Storage tests of foods packed in various ways, carried out under conditions which indicate the ability of these packages to resist the deleterious effects of air, water, water vapor ,rough handling, insects, and microbiological growth. During storage, the dehydrated vegetables, including carrots, cabbage, beets, potatoes, corn, and peas, are tested at regular intervals for moisture content, vitamin retention, palatability, and general state of preservation.

This report deals with specific results on the physical character of packaging materials in their relation to the packaging of dehydrated vegetables. A detailed report of the entire investigation will be presented when adequate and conclusive findings are available.

## Survey of Packaging Materials and Methods

In this discussion, the term "packaging methods" is not restricted to the basic materials of package construction; it includes as well all concomitant provisions that may contribute to the physical protection of dehydrated vegetables. It became evident during the early stages of investigation that despite the superiority of the newer materials over ordinary types of sheeting and containers in common use, none of the available packages could be relied upon, under all circumstances, to properly preserve the more perishable products.

In gas packing, for example, it is impossible to secure satisfactory retention of either carbon dioxide or nitrogen where packages are stored at the higher temperatures (100° to 130°F). Furthermore, the problems of rendering sealing and closing devices sufficiently impervious are unusually difficult to solve. Another obstacle, observed particularly in loose- packing of dehydrated vegetables, is the readiness with which a majority of the sheet materials examined can be pierced or punctured.

The basic materials employed are rendered more or less impervious to deleterious physical and chemical agents through the use of wax compounds, thermoplastic or hot melt resins, lacquers, asphaltic compounds, asphalt-resin combinations, and various types of films or sheeting, used for lamination, impregnation, coating, sealing, and dipping.

The program of investigation, covering approximately 200 different types of sheets, films, bags, and containers, includes the following procedures.

1. Tests of sheet materials carried out according to TAPPI Standard methods.

2. Packages containing dry sawdust-$CaCl_2$ mixture, stored at 105°F., and 85% R. H., which are weighed periodically.

---

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; New York State Experiment Station, Geneva, N. Y.

[2] Chief in Research; New York State Experiment Station, Geneva, N. Y., with acknowledgments to Robert Thomas, Miss Raphael Gillotte, and Miss Thressa Campbell of the Station Staff, and to the Director of the Research Division, K. A. Taylor, of the International Paper Company for technical assistance.

3. Packaging tests with wet sawdust held at 100° F., in an atmosphere of dry air.
4. Submersion tests in fresh and salt water.
5. Temperature range experiments to determine the ability of packages to withstand temperatures of −15°F to +130°F.

## Water Vapor Permeability of Representative Sheet Materials

There has been much discussion as to the elements of precision among various useful methods employed in testing certain physical properties of sheet materials and packages. This is true of methods for determining water vapor permeability. While the results secured by a standard technique are helpful in eliminating the poorer sheet materials, this is only one of several critical tests to which all suitable packages must eventually be subjected. For purposes of elimination and comparative testing, the TAPPI Standard T 448 m meets satisfactorily the requirements of this investigation.

### Glassine Types

Two of the sheet materials that are composed basically of glassine (Table I) were found constantly to give low readings. Some types crack readily when creased, while others are so brittle that, even with careful handling, slight tearing may occur. Certain of the laminated and coated products regularly resist the penetration of water vapor but few of them are able to withstand prolonged storage at high-humidity levels.

### Parchments and Special Waxed Papers

Only a small number of sheets in this group (Table II) show low rates of water vapor permeability. These include carefully processed, selected materials which are laminated, coated or impregnated with special waxes. While several types are well-coated with wax, the effectiveness of this protection is usually nullified by creasing and cracking, which admit water vapor to poorly waxed fibers within the sheet. In other instances, selection of fibers or waxing treatments are faulty, as revealed by prompt failure of these papers at soaked areas.

TABLE I.—WATER VAPOR PERMEABILITY (TAPPI STANDARD) BY GLASSINE-TYPE CREASED SHEETS

| Sheet | | Water Vapor Permeability grams per sq. m. per 24 hr. | | | |
|---|---|---|---|---|---|
| Code | Type | Days Tested | Maximum | Minimum | Average |
| FD2 | Waxed glassine..... | 12 | 0.64 | 0.32 | 0.32 |
| AD1a* | Glassine-Cellophane ... | 14 | 1.60 | 0.64 | 0.96 |
| FD3 | Coated glassine ..... | 6 | 1.60 | 0.32 | 0.96 |
| FD1 | Waxed glassine ..... | 12 | 1.76 | 0.64 | 1.09 |
| AD1 | Glassine-cellophane ... | 14 | 2.88 | 0 | 1.40 |
| HD1 | Coated glassine ..... | 6 | 1.92 | 0.96 | 1.44 |
| EP1* | 3-ply with cellophane.. | 12 | 1.60 | 1.60 | 1.60 |
| AD1a | Glassine-cellophane ... | 14 | 1.92 | 1.28 | 1.60 |
| EP1 | 3-ply with cellophane.. | 12 | 3.50 | 1.30 | 2.20 |
| AD5 | Glassine-cellophane ... | 12 | 8.64 | 1.30 | 3.20 |

* Uncreased.

TABLE II.—WATER VAPOR PERMEABILITY (TAPPI STANDARD) BY PARCHMENTS AND SPECIAL WAXED PAPER SHEETS (CREASED)

| Sheet | | Water Vapor Permeability grams per sq. m. per 24 hr. | | | |
|---|---|---|---|---|---|
| Code | Type | Days Tested | Maximum | Minimum | Average |
| BD8 | Waxed parchment .... | 12 | 0.64 | 0.32 | 0.32 |
| BD2a | Wax coated paper..... | 18 | 0.64 | 0 | 0.41 |
| AD3 | Waxed glassine ..... | 14 | 1.12 | 0.32 | 0.65 |
| BD2c | Wax coated paper..... | 18 | 1.28 | 0.64 | 0.86 |
| BD8c | Waxed parchment .... | 11 | 2.24 | 0.32 | 1.28 |
| BD1c | Wax coated paper..... | 12 | 2.90 | 0.64 | 1.30 |
| GD1 | Parchment-cellophane . | 11 | 2.56 | 0.96 | 1.60 |
| GD4 | Coated parchment .... | 12 | 4.50 | 1.60 | 2.60 |
| BD2b | Special waxed paper... | 12 | 4.50 | 1.60 | 2.90 |
| BD5 | Waxed paper ..... | 6 | 3.84 | 2.56 | 3.20 |
| BWD1 | Waxed coated paper... | 12 | 6.40 | 1.60 | 3.20 |
| BWD2 | Waxed coated paper... | 12 | 4.50 | 2.24 | 3.20 |
| BD1b | Wax coated paper..... | 12 | 4.50 | 2.20 | 3.50 |
| BD9 | Waxed paper ..... | 6 | 13.40 | 8.64 | 9.60 |
| BWD3 | Waxed coated paper... | 10 | 10.56 | 8.32 | 10.24 |
| BD6 | Waxed paper ..... | 6 | 25.00 | 13.80 | 17.30 |
| BD1a | Special waxed paper.. | 12 | 24.00 | 16.00 | 22.00 |

TABLE III.—WATER VAPOR PERMEABILITY (TAPPI STANDARD) BY SPECIAL LAMINATED-TYPE SHEETS (CREASED)

| Sheet | | Water Vapor Permeability grams per sq. m. per 24 hr. | | | |
|---|---|---|---|---|---|
| Code | Type | Days Tested | Maximum | Minimum | Average |
| NHD2 | Coated glassine ..... | 12 | 0.64 | 0.32 | 0.51 |
| DSD2 | Textile, cellophane, etc. | 12 | 0.64 | 0.32 | 0.384 |
| YD1* | Paper, cellophane, etc.. | 12 | 0.96 | 0.32 | 0.51 |
| GD5 | Parchment-cellophane . | 18 | 0.96 | 0 | 0.52 |
| YD1 | Paper, cellophane, etc.. | 12 | 0.96 | 0.32 | 0.64 |
| KD1 | Plastic film ..... | 10 | 1.60 | 0.64 | 0.99 |
| DSD1 | Wax laminated fabric.. | 12 | 2.20 | 0.32 | 0.96 |
| MSD1 | Laminated cellulose .. | 12 | 3.50 | 0.32 | 1.60 |
| LE1 | Asphalt treated paper.. | 11 | 28.50 | 19.80 | 22.10 |

* Uncreased.

TABLE IV.—WATER VAPOR PERMEABILITY (TAPPI STANDARD) BY PAPERBOARD TYPE CREASED SHEETS

| Sheet | | Water Vapor Permeability grams per sq. m. per 24 hr. | | | |
|---|---|---|---|---|---|
| Code | Type | Days Tested | Maximum | Minimum | Average |
| RLD5 | Paperboard-cellophane . | 13 | 2.56 | 0.64 | 1.30 |
| RPD1* | Paperboard-glassine ... | 12 | 3.20 | 1.30 | 1.92 |
| RLD1 | Paperboard-glassine ... | 13 | 2.56 | 1.60 | 1.92 |
| RLD4 | Paperboard-glassine ... | 13 | 4.80 | 1.30 | 3.50 |
| RLD3 | Paperboard-glassine ... | 13 | 4.80 | 2.24 | 3.52 |
| RPD1 | Paperboard-glassine ... | 12 | 4.50 | 2.24 | 3.52 |
| ID1 | Asphalt-laminated paperboard ..... | 11 | 9.92 | 3.84 | 6.72 |
| ID3 | Asphalt-laminated paperboard ..... | 11 | 16.00 | 3.84 | 7.04 |
| ID2 | Glassine-lined paperboard ..... | 11 | 23.40 | 4.50 | 15.40 |
| RLD2 | Paperboard-glassine ... | 13 | 98.20 | 75.50 | 85.80 |

* Uncreased.

### Special Type Sheets

This group included a few special products which, with one exception show possibilities for more extensive applications in this field (Table III). While these materials are, on the whole, somewhat more complex than the majority of other suitable products, several fail in this test to exhibit unusual resistance to the passage of water vapor.

### Paperboard

It is evident that paperboard products (Table IV), as such, are unable at present to meet a high

TABLE V.—WATER VAPOR PERMEABILITY (TAPPI STANDARD) BY CELLOPHANE-TYPE CREASED SHEETS

| Sheet | | Water Vapor Permeability grams per sq. m. per 24 hr. | | | |
|---|---|---|---|---|---|
| Code | Type | Days Tested | Maximum | Minimum | Average |
| DD3 | Laminated cellophane.. | 12 | 0.64 | 0 | 0.26 |
| DD10 | Laminated cellophane.. | 12 | 0.96 | 0.32 | 0.45 |
| TSD6* | Paperboard-2-ply cellophane ..... | 17 | 0.60 | 0.30 | 0.50 |
| TSD2* | Special lined paperboard | 17 | 0.90 | 0.30 | 0.60 |
| TSD3* | Paperboard-parchment . | 17 | 0.90 | 0.30 | 0.60 |
| TSD9* | Paperboard-cellophane . | 17 | 0.90 | 0.30 | 0.60 |
| DD9 | Laminated cellophane.. | 14 | 1.28 | 0 | 0.61 |
| ED1 | Paper-cellophane ..... | 12 | 0.96 | 0.32 | 0.64 |
| TSD6 | Paperboard-2-ply cellophane ..... | 17 | 1.30 | 0.30 | 0.64 |
| TSD4 | Paperboard-cellophane . | 17 | 0.96 | 0.32 | 0.65 |
| TSD3 | Paperboard-parchment . | 17 | 0.96 | 0.64 | 0.84 |
| DD8 | Laminated cellophane.. | 14 | 6.40 | 0 | 0.87 |
| TSD9 | Paperboard-cellophane . | 17 | 1.30 | 0.64 | 0.90 |
| TSD2 | Special lined paperboard ..... | 17 | 1.60 | 0.64 | 0.93 |
| TSD1 | Special lined paperboard ..... | 17 | 1.30 | 0.64 | 0.96 |
| TSD5 | Laminated cellophane.. | 17 | 1.60 | 0.64 | 0.96 |
| TSD8 | Paperboard-cellophane . | 17 | 1.90 | 0.30 | 1.00 |
| TSD4* | Paperboard-cellophane . | 17 | 1.30 | 0.90 | 1.10 |
| DD2 | Laminated cellophane.. | 14 | 6.08 | 0 | 1.30 |
| STD2 | Double walled cellophane ..... | 12 | 3.20 | 0.96 | 1.60 |
| TSD7 | Paperboard-parchment cellophane ..... | 17 | 2.20 | 1.30 | 1.60 |
| MD1 | Double walled cellophane ..... | 12 | 3.50 | 1.30 | 2.00 |
| TSD1* | Special lined paperboard | 17 | 2.50 | 1.60 | 2.20 |
| TSD7* | Paperboard-parchment cellophane ..... | 17 | 2.60 | 1.60 | 2.20 |
| STD1 | Single walled cellophane ..... | 12 | 12.50 | 6.40 | 9.30 |

* Uncreased.

standard of water vapor resistance. While certain grades of paperboard sometimes give lower rates of permeability than were encountered in the present investigation, the latter have been designed to meet some of the more general packaging requirements for dehydrated foods.

So far as the materials tested are concerned, the results obtained are quite unsatisfactory. However, in view of the opportunities that are available for rendering unit packages relatively impervious, suitable paperboard containers of low water vapor permeability may yet be developed.

### Cellophane-Type Sheets

The grades of cellophane that are adapted to the packaging of dehydrated foods show comparatively low permeability to water vapor. Many of the types and combinations studied are now being utilized in the packaging of these foods.

Cellophane is employed in a variety of ways to achieve a high degree of water vapor resistance. In order to secure maximum efficiency from the use of cellophane sheeting, converters should select the correct grades and apply them properly.

## Physical Resistance and Strength of Fabricated Sheets

In carrying out severe physical tests on packaging materials designed to simulate conditions to which overseas shipments may be subjected, it is important that each type of bag, wrapper, and container meet certain definite requirements. While practical tests

TABLE VI.—PHYSICAL STRENGTH OF GLASSINE-TYPE SHEETS

| Sheet | | Basis wt. (24x36-500), lb. | Caliper, 0.001 in. | Tests carried out at 73° F. and 50% R.H. | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Burst, points | Tearing Resistance, grams | | Stiffness, mg. | |
| Code | Type | | | | MD | CD | MD | CD |
| AD1 | Glassine-cellophane | 52.4 | 2.50 | 31 | 39.0 | 46.5 | 69 | 33 |
| AD5 | Glassine-cellophane | 87.6 | 4.35 | 45 | 40.0 | 50.0 | 328 | 156 |
| FD1 | Waxed glassine | 58.2 | 2.80 | 34 | 31.5 | 35.5 | 146 | 74 |
| FD2 | Waxed glassine | 56.5 | 2.70 | 27 | 26.0 | 36.0 | 89 | 38 |
| FD3 | Coated glassine | 82.4 | 4.10 | 43 | 48.0 | 56.5 | 525 | 258 |
| HD1 | Coated glassine | 51.8 | 2.60 | 26 | 28.5 | 30.5 | 82 | 67 |

TABLE VII.—PHYSICAL STRENGTH OF PARCHMENT AND SPECIAL WAXED PAPER SHEETS

| Sheet | | Basis wt. (24x36-500), lb. | Caliper, 0.001 in. | Tests carried out at 73° F. and 50% R.H. | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Burst, points | Tearing Resistance, grams | | Stiffness, mg. | |
| Code | Type | | | | MD | CD | MD | CD |
| AD3 | Waxed glassine | 70.6 | 3.75 | 45 | 60.0 | 61.0 | 40 | 19 |
| BD1a | Special waxed paper | 66.1 | 4.50 | 34 | 98.5 | 102.5 | 30 | 18 |
| BD1b | Wax coated paper | 83.7 | 5.00 | 40 | 117.0 | 118.5 | 51 | 33 |
| BD1c | Wax coated paper | 79.6 | 5.10 | 60 | 90.0 | 97.0 | 54 | 29 |
| BD2a | Wax coated paper | 92.8 | 5.60 | 61 | 94.5 | 102.0 | 61 | 41 |
| BD2b | Special waxed paper | 71.0 | 4.90 | 44 | 81.0 | 91.0 | 52 | 23 |
| BD2c | Wax coated paper | 64.0 | 3.70 | 22 | 46.0 | 52.5 | 253 | 115 |
| BD5 | Waxed paper | 42.2 | 2.50 | 16 | 49.5 | 52.0 | 58 | 31 |
| BD6 | Waxed paper | 40.2 | 2.30 | 16 | 39.5 | 40.5 | 42 | 33 |
| BD8 | Waxed parchment | 62.1 | 3.80 | 27 | 26.0 | 28.5 | 68 | 38 |
| BD9 | Waxed paper | 61.2 | 3.60 | 22 | 58.5 | 71.0 | 107 | 73 |
| BWD1 | Waxed coated paper | 45.5 | 3.35 | 32 | 43.5 | 49.5 | 77 | 43 |
| BWD2 | Waxed coated paper | 40.1 | 2.45 | 22 | 30.0 | 32.0 | 33 | 16 |
| BWD3 | Waxed coated paper | 50.4 | 3.60 | 27 | 43.0 | 55.0 | 84 | 53 |
| GD1 | Parchment-cellophane | 69.4 | 4.20 | 55 | 56.0 | 68.0 | 149 | 64 |
| GD4 | Coated parchment | 38.5 | 2.60 | 20 | 19.0 | 18.0 | 47 | 33 |

TABLE VIII.—PHYSICAL STRENGTH OF SPECIAL LAMINATED-TYPE SHEETS

| Sheet | | Basis wt. (24x36-500), lb. | Caliper, 0.001 in. | Tests carried out at 73° F. and 50% R.H. | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Burst, points | Tearing Resistance, grams | | Stiffness, mg. | |
| Code | Type | | | | MD | CD | MD | CD |
| GD5 | Parchment-cellophane | 85.6 | 4.75 | 51 | 57.0 | 63.0 | 241 | 111 |
| KD1 | Plastic film | 32.2 | 1.50 | ... | ... | Too Elastic | ... | ... |
| LE1 | Asphalt treated paper | 72.7 | 4.90 | 80 | 149.0 | 145.5 | 50 | 30 |
| NHD2 | Coated glassine | 86.6 | 4.90 | 36 | 49.0 | 59.0 | 455 | 233 |
| YD1 | Paper, cellophane, etc. | 198.2 | 6.10 | 78 | 146.0 | 188.0 | 710 | 400 |

TABLE IX.—PHYSICAL STRENGTH OF PAPERBOARD-TYPE SHEETS

| Sheet | | Basis wt. (24x36-500), lb. | Caliper, 0.001 in. | Tests carried out at 73° F. and 50% R.H. | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Burst, points | Tearing Resistance, grams | | Stiffness, mg. | |
| Code | Type | | | | MD | CD | MD | CD |
| ID1 | Asphalt-laminated paperboard | 316.0 | 24.30 | 105 | 306.0 | 407.0 | 37600 | 15200 |
| ID2 | Glassine-lined paperboard | 299.0 | 23.7 | 118 | 264.0 | 350.0 | 41600 | 12000 |
| ID3 | Asphalt-laminated paperboard | 294.0 | 23.9 | 113 | 269.0 | 367.0 | 41600 | 13600 |
| RLD1 | Paperboard-glassine | 306.0 | 19.80 | 87 | 230.0 | 280.0 | 23100 | 10300 |
| RLD2 | Paperboard-glassine | 309.0 | 24.0 | 90 | 184.0 | 236.0 | ..... | 10990 |
| RLD3 | Paperboard-glassine | 272.0 | 20.0 | 89 | 180.0 | 272.0 | 23420 | 9580 |
| RLD4 | Paperboard-glassine | 265.0 | 19.8 | 78 | 192.0 | 296.0 | 24500 | 8520 |
| RLD5 | Paperboard-cellophane | 271.0 | 18.6 | 94 | 220.0 | 320.0 | 20950 | 6030 |

TABLE X.—PHYSICAL STRENGTH OF CELLOPHANE-TYPE SHEETS

| Sheet | | Basis wt. (24x36-500), lb. | Caliper, 0.001 in. | Tests carried out at 73° F. and 50% R.H. | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Burst, points | Tearing Resistance, grams | | Stiffness, mg. | |
| Code | Type | | | | MD | CD | MD | CD |
| DD2 | Laminated cellophane | 70.4 | 3.70 | ... | ... | ... | ... | ... |
| DD3 | Laminated cellophane | 59.8 | 3.15 | 71 | ... | ... | ... | ... |
| DD8 | Laminated cellophane | 52.2 | 2.55 | 74 | ... | ... | ... | ... |
| DD9 | Laminated cellophane | 67.6 | 3.40 | 78 | ... | ... | ... | ... |
| DD10 | Laminated cellophane | 60.7 | 3.20 | 62 | 24.0 | 38.0 | 122 | 69 |
| ED1 | Paper-cellophane | 69.0 | 4.40 | 29.5 | 87.0 | 111.0 | 311 | 133 |
| MD1 | Double walled cellophane | 20.3 | 0.90 | 33 | ... | ... | ... | ... |
| STD1 | Single walled cellophane | 20.8 | 0.94 | 26 | ... | ... | ... | ... |
| STD2 | Double walled cellophane | 20.8 | 0.94 | 28 | ... | ... | ... | ... |

of the finished package are decisive, the resistance and strength of each component part should contribute to the proper protection of the food contents.

As far as sheet materials are concerned, it is debatable just how far to go toward the setting of physical standards which would be useful and feasible. The following tables show that, while some variations exist, the results as a whole are in substantial agreement with those usually obtained for each class of products (Tables VI-X). The importance of the various tests which reveal the physical characteristics of sheets is generally accepted. It is doubtful, however, that such tests alone will prove adequate for determining whether a given material is suitable for the packaging of dehydrated foods.

### Water and Water Vapor Permeability by Fabricated Bags Filled with Wet or Dry Sawdust

While physical tests may indicate roughly the suitability of sheets for packing dehydrated vegetables, no tests now on the horizon are so practically and critically useful as those concerned with actual performance.

Storage tests with dry sawdust—$CaCl_2$ mixture is an important means of determining, under controlled conditions, the ability of a package to resist the penetration of water and water vapor. This procedure is even more critical and informative than the water vapor permeability test, in that observations can be made as to failures in the package due to weaknesses in methods of sealing and closing. In the case of the more impervious packages there are reasonably close correlations between the two methods. The situation is quite different where failures in packages are due to improper seals, closures or laminations. In such instances, water vapor permeation is generally considerable and exceedingly variable. The wet sawdust method is useful in investigating the efficiency of closed side seams and top and bottom seals of bags, pouches, and other packages.

In the dry sawdust-$CaCl_2$ experiment, the packages to be studied were filled with a mixture of one part $CaCl_2$ and four parts dry sawdust, by volume. After sealing and closing, the packages were held at 105°F. and 85% R. H. for storage periods of from 6 to 19 weeks, during which periodic weighings were made. Conversely, similar packages, filled with wet sawdust, were stored at 100°F. and 20% R.H. for 6 to 19 weeks, noting losses in weight through gravimetric determinations.

#### Glassine Types

A majority of these types are heat-sealing (Table XI), but in two or three cases such provisions failed to afford adequate protection. Base and side seam seals were often weak. Bags of the glassine type readily crease and some fail at deep creases and cracks. In the case of packages containing dry products the use of overwraps appears to be definitely advantageous.

TABLE XI.—WATER VAPOR PERMEABILITY BY FABRICATED GLASSINE-TYPE BAGS AS OBSERVED WHEN FILLED WITH WET OR DRY SAWDUST

| | | Bags Stored from 6 to 19 weeks Filled With | | | |
|---|---|---|---|---|---|
| | | Dry Sawdust—$CaCl_2$ Stored at 105° F. and 85% R.H. Increase, % | | Wet Sawdust Stored at 100° F. and 20% R.H. Decrease, % | |
| Bag Code | Sheet Type | Without Overwrap | With Overwrap | Without Overwrap | With Overwrap |
| AD1 | Glassine-cellophane | 1.07 | 0.58 | 4.60 | 1.00 |
| AD5 | Glassine-cellophane | 0.56 | 0.36 | 1.70 | 1.00 |
| FD1 | Waxed glassine | 1.16 | 0.30 | 32.92 | 13.50 |
| FD2 | Waxed glassine | 3.80 | ... | 51.35 | ... |
| FD3 | Coated glassine | 0.16 | 0 | 8.53 | 10.10 |
| HD1 | Coated glassine | 2.65 | 0.45 | 70.60 | 26.65 |

TABLE XII.—WATER VAPOR PERMEABILITY BY FABRICATED PARCHMENTS AND SPECIAL WAXED PAPER BAGS AS OBSERVED WHEN FILLED WITH WET OR DRY SAWDUST

| | | Bags Stored from 6 to 19 weeks Filled With | | | |
|---|---|---|---|---|---|
| | | Dry Sawdust—$CaCl_2$ Stored at 105° F. and 85% R.H. Increase, % | | Wet Sawdust Stored at 100° F. and 20% R.H. Decrease, % | |
| Bag Code | Sheet Type | Without Overwrap | With Overwrap | Without Overwrap | With Overwrap |
| AD3 | Waxed glassine | 1.05 | ... | 17.85 | ... |
| BD1a | Special waxed paper | 23.35 | ... | 50.25 | ... |
| BD1b | Wax coated paper | 3.60 | ... | 18.00 | ... |
| BD1c | Wax coated paper | 2.99 | 0.12 | 42.75 | 14.45 |
| BD2a | Wax coated paper | 0.44 | 0.20 | 58.70 | 6.40 |
| BD2b | Special waxed paper | 7.05 | 0.46 | 31.30 | 6.05 |
| BD2c | Wax coated paper | 15.10 | 0.56 | 13.45 | 2.85 |
| BD8 | Waxed parchment | 1.66 | 0.13 | 25.98 | 10.30 |
| BD9 | Waxed paper | 4.15 | ... | 33.10 | ... |
| BWD1 | Waxed coated paper | 23.96 | 1.04 | 68.60 | 12.55 |
| BWD2 | Waxed coated paper | 21.98 | 1.18 | 71.55 | 11.20 |
| BWD3 | Waxed coated paper | 15.91 | 1.12 | 58.05 | 3.45 |
| GD4 | Coated parchment | 8.05 | ... | 51.30 | ... |
| JL3 | Waxed paper | 22.60 | ... | 64.50 | ... |

TABLE XIII.—WATER VAPOR PERMEABILITY BY FABRICATED SPECIAL LAMINATED TYPE BAGS AS OBSERVED WHEN FILLED WITH WET OR DRY SAWDUST

| | | Bags Stored from 6 to 19 weeks Filled With | | | |
|---|---|---|---|---|---|
| | | Dry Sawdust—$CaCl_2$ Stored at 105° F. and 85% R.H. Increase, % | | Wet Sawdust Stored at 100° F. and 20% R.H. Decrease, % | |
| Bag Code | Sheet Type | Without Overwrap | With Overwrap | Without Overwrap | With Overwrap |
| GD5 | Parchment-cellophane | 0 | 0.07 | 3.12 | 0.50 |
| KD1 | Plastic film | 0 | 0.32 | 1.80 | 0.45 |
| LE1 | Asphalt treated paper | 31.50 | ... | 51.75 | ... |
| NHD2 | Coated glassine | 0.60 | 0.22 | 19.75 | 30.90 |
| YD1 | Paper, cellophane, etc. | 0 | ... | 4.62 | ... |

#### Fabricated Parchment Products and Special Waxed Paper Bags

The problems involved in the tight sealing of these packages present unusual difficulties. Heavily waxed sheets are heat-crimped with two or more full folds. Light waxed and wax-impregnated materials are sealed by means of selected thermoplastic adhesives with heat-crimping.

In the dry sawdust test (Table XII), parchment-type sheeting, usually laminated and carefully waxed with special compounds, yields the most satisfactory results. Where the products of this general group are largely or entirely fibrous in character, tests and observations show inadequate protection. Decided improvements were evident in the experiments where overwraps were utilized. In poorly protected bags, considerable softening and tearing developed in creased areas.

#### Special Laminated-Type Bags and Similar Fabricated Products

With one exception, these products hold the dry sawdust mixture unusually well (Table XIII). The materials in this special group are adaptable to a number of packaging methods and yet work so well independently that they do not require standard type overwraps, which are invariably less resistant to water and water vapor.

#### Paper Containers

The paperboard packages that are being used or developed for packing foods, including dehydrated products, are of numerous types. A large majority of these containers are not suitable for dehydrated vegetables. Table XIV lists a few types usually referred to as "combination" packages, each of which employs several protective devices against ingress of water, water vapor, air, etc., instead of one or two. In this

development increasingly effective use is made of sealing and closure devices, which aid in producing reasonably tight packages.

### Cellophane-Type Bags

Selected cellophane products were generally effective in protecting the dry sawdust mixture from water vapor (Table XV). Certain types retained considerable strength and toughness but failures at seams and seals were occasionally encountered.

In some instances, side seams showed a tendency to pull apart and seals became brittle. Other grades had strong side seams but the bases were of comparatively weak construction. Some of these products are subject to creasing and cracking, which increase their permeability to water vapor. These indications of failure are usually followed by a breakdown of laminating adhesives with separation of plies. Proper lamination will help materially in avoiding this situation.

### Resistance of Fabricated Bags to Submersion

The ability of a package to withstand submersion in fresh water and completely protect its contents is a problem of considerable urgency under war conditions. Granting that the basic materials of a package have a low rate of water vapor permeability, it does not necessarily follow that the package, if submerged, will withstand penetration of water. The problems under investigation include softening, wicking and capillary action of fibers; splitting of laminations; and other evidences of deterioration through direct contact with water. The most promising of the materials studied thus far have been tested by complete submersion for a total of 96 hours.

### Glassine Types

In general, submersion in water had little effect on laminated glassine products (Table XVI) and, in most cases, glassine-type bags withstood the test satisfactorily. Contact with water tends, however, to weaken seals and closures, causing some of the packages to fail. In the handling of glassine products, extra care is necessary to prevent cracking or tearing of the more brittle types.

TABLE XIV.—WATER VAPOR PERMEABILITY BY FABRICATED PAPERBOARD CONTAINERS AS OBSERVED WHEN FILLED WITH WET OR DRY SAWDUST

| | | Bags Stored from 6 to 19 weeks Filled With | | | |
|---|---|---|---|---|---|
| | | Dry Sawdust—$CaCl_2$ Stored at 105° F. and 85% R.H. Increase, % | | Wet Sawdust Stored at 100° F. and 20% R.H. Decrease, % | |
| Bag Code | Sheet Type | Without Overwrap | With Overwrap | Without Overwrap | With Overwrap |
| AD5V7 | Waxed container-glassine | 0.24 | ... | 1.30 | ... |
| GD5V7 | Waxed container-cellophane | 0.09 | ... | 1.20 | ... |
| GD5V9 | Coated container-cellophane | 0.34 | ... | 3.70 | ... |
| ID1 | Asphalt-laminated paperboard | 12.90 | ... | 36.60 | ... |
| ID2 | Glassine lined paperboard | 14.40 | ... | 52.80 | ... |
| ID5 | Glassine lined paperboard | 16.30 | ... | 41.75 | ... |
| ID6 | Paperboard-waxed glassine | 20.00 | ... | 61.50 | ... |
| ND6 | Coated container | 12.95 | ... | 51.50 | ... |
| ND7 | Coated conainer | 10.20 | ... | 15.10 | ... |
| OD1 | Waxed container | 5.05 | ... | 38.55 | ... |
| PF1 | Waxed container | 2.50 | ... | 18.80 | ... |
| QD1 | Waxed container | 7.15 | ... | 41.85 | ... |
| RLD1 | Paperboard-glassine | 16.42 | ... | 58.27 | ... |
| RLD2 | Paperboard-glassine | 38.28 | ... | 55.10 | ... |
| RLD3 | Paperboard-glassine | 4.77 | ... | 59.30 | ... |
| RLD4 | Paperboard-glassine | 2.54 | ... | 41.32 | ... |
| RLD5 | Paperboard-cellophane | 2.34 | ... | 24.80 | ... |
| TR2-15 | Coated paperboard | 0.80 | ... | 13.60 | ... |
| TR2-16 | Coated paperboard | 0.10 | ... | 4.50 | ... |
| V8 | Waxed container | 0.95 | ... | 2.75 | ... |
| ZD1 | Waxed container | 1.55 | ... | 15.45 | ... |
| ZD2 | Waxed container | 2.15 | ... | 20.50 | ... |
| V1 (control) | Standard type can | 46.10 | ... | 60.00 | ... |

TABLE XV.—WATER VAPOR PERMEABILITY BY FABRICATED CELLOPHANE-TYPE BAG AS OBSERVED WHEN FILLED WITH WET OR DRY SAWDUST

| | | Bags Stored from 6 to 19 weeks Filled With | | | |
|---|---|---|---|---|---|
| | | Dry Sawdust—$CaCl_2$ Stored at 105° F. and 85% R.H. Increase, % | | Wet Sawdust Stored at 100° F. and 20% R.H. Decrease, % | |
| Bag Code | Sheet Type | Without Overwrap | With Overwrap | Without Overwrap | With Overwrap |
| DD9 | Laminated cellophane | 3.05 | 0.20 | 3.45 | 0.40 |
| DD10 | Laminated cellophane | 4.42 | 0.46 | 3.22 | 0.85 |
| ED1 | Paper-cellophane | 1.50 | 0 | 4.49 | 0.85 |
| GMD1 | 2-ply cellophane | 0.10 | ... | 5.86 | ... |
| GMD2 | Single ply cellophane | 2.42 | ... | 41.00 | ... |
| GMD3 | Single ply cellophane | 2.54 | ... | 40.00 | ... |
| GMD4 | Laminated cellophane | 0.21 | ... | 4.94 | ... |
| GMD5 | 2-ply cellophane | 0.20 | ... | 8.93 | ... |
| GMD6 | Laminated cellophane | 0.34 | ... | 6.05 | ... |
| SD1 | Double-walled cellophane | 3.72 | 0.30 | 14.65 | 2.10 |
| STD2 | Double-walled cellophane | 0.82 | 0.39 | 8.75 | 2.15 |
| TSD1 | Special lined paperboard | 1.57 | ... | 15.04 | ... |
| TSD2 | Special lined paperboard | 0.90 | ... | 10.08 | ... |
| TSD3 | Paperboard-parchment | 0.80 | ... | 16.98 | ... |
| TSD4 | Paperboard-cellophane | 2.67 | ... | 5.21 | ... |
| TSD6 | Paperboard-2-ply cellophane | 0.25 | ... | 3.56 | ... |
| TSD7 | Paperboard-parchment-cellophane | 2.20 | ... | 43.85 | ... |
| TSD8 | Paperboard-cellophane | 1.52 | ... | 10.62 | ... |
| TSD9 | Paperboard-cellophane | 0.79 | ... | 7.31 | ... |
| V9 | Paperboard-cellophane | 2.20 | ... | 56.80 | ... |

### Parchments and Special Waxed Papers

Certain of these materials withstood submersion tests fairly well (Table XVII). There were several failures, due largely to slow absorption of water by the stock. Throughout these tests there seemed to be a larger proportion of failures in duplex sheeting where one or both plies are composed of poorly protected fiber stocks.

### Special Laminated Types

The packages of this series passed the submersion test more satisfactorily than the other groups studied (Table XVIII). In some laminated products, the plies showed evidences of pulling apart but the inside sheets continued to provide adequate protection. The contents of all the bags tested remained dry during the entire period of submersion.

### Paperboard Containers

Of all the classes of packages studied, the members of this group (Table XVIII) are probably the least

TABLE XVI.—RESISTANCE OF FABRICATED GLASSINE-TYPE BAGS FILLED WITH SAWDUST AND CALCIUM CHLORIDE TO SUBMERSION IN 65° F. WATER FOR 96 HOURS

| | | Condition of contents after submersion for | | | |
|---|---|---|---|---|---|
| Code | Bag Sheet Type | 24 hr. | 36 hr. | 96 hr. | Remarks |
| AD1 | Glassine-cellophane | D | D | D | |
| AD1 | Glassine-cellophane | D | D | w | Seal failed |
| AD5 | Glassine-cellophane | D | D | D | |
| AD5 | Glassine-cellophane | D | D | w | Seal weakened |
| FD1 | Waxed glassine | D | D | D | |
| FD1 | Waxed glassine | D | D | D | |
| FD3 | Coated glassine | D | D | D | |
| HD1 | Coated glassine | D | w | w | Bag softened |
| HD1 | Coated glassine | D | D | D | |

D = Dry  w = Wet

TABLE XVII.—RESISTANCE OF FABRICATED PARCHMENTS AND SPECIAL WAXED PAPER TYPE BAGS FILLED WITH SAWDUST AND CALCIUM CHLORIDE TO SUBMERSION IN 65° F. WATER FOR 96 HOURS

| | | Condition of contents after submersion for | | | |
|---|---|---|---|---|---|
| Code | Bag Sheet Type | 24 hr. | 36 hr. | 96 hr. | Remarks |
| BD1c | Wax coated paper | D | D | D | |
| BD1c | Wax coated paper | D | w | w | Bag softened |
| BD2a | Wax coated paper | D | D | D | |
| BD2a | Wax coated paper | D | D | D | |
| BD8 | Waxed parchment | D | D | w | Bag softened |
| BD8 | Waxed parchment | D | D | D | |
| BWD3 | Waxed coated paper | D | D | w | Seal failed |
| BWD3 | Waxed coated paper | D | D | —C | Crease failed |

D = Dry  w = Wet

able to survive the submersion test. Closure problems present real difficulties and dipping compounds are usually required to render certain types sufficiently impervious. New developments in this field are promising especially in cases involving paperboard and fiberboard containers which have been wax dipped. In such instances, the basic physical resistance and rigidity of these boards are of decided value when augmented by the waterproofing qualities of wax dipping.

### Cellophane Types

Some grades of cellophane (Table XIX) which are relatively impermeable to water vapor, also resisted water penetration when submerged. In exceptional cases, where packages proved insufficiently watertight, failures were due largely to difficulties in sealing. Results show that if selected types of cellophane bags are properly fabricated and sealed, these packages afford good protection against water.

## Effect of Low Temperatures on the Resistance of Bags and Packages

A selected group of promising fabricated materials were filled with dry sawdust mixture, properly closed and sealed, and held at a temperature of −20°F. for a period of 72 hours (Table XX).

After storage, the bags and packages were subjected to a series of severe tests including bending, creasing, tumbling and impact. Various degrees of hardening were observed fairly generally among the bag materials (Table XX). Several packages became so brittle that tumbling reduced them to shatters. Dropping filled bags so that impact with hard surfaces occurred at the corners of the package is an unusually drastic test. Properly laminated materials were much less affected than nonlaminated products.

## Discussion

The enormous expansion taking place in the dehydrated foods industry has produced a new outlet for materials in which these products may be suitably packaged. Generally speaking, packaging programs are likely to cover several different phases of the subject such, for example, as unit packages, properly protective types of wraps for compressed bricks, and packages which may be used by the Army for overseas shipments of dehydrated vegetables in bulk. Each of these methods of packaging has its own specific requirements. Special interest and concern center, at the moment, upon detailed specifications which packages for bulk dehydrated vegetables must meet before they can be considered acceptable.

From the standpoint of the vegetables that are now being dehydrated for Army use, it is generally agreed that, with the exception of carrots and cabbage which require gas packing, paper or fiberboard containers suitable for less perishable vegetables can be manufactured. It is expected that these packages will be able to meet satisfactorily such standards of performance as officials in charge of Army shipments may prescribe. Specifications should be based primarily on performance, allowing, where necessary, alternative methods of checking, in order to meet the specific requirements and possibilities of individual dehydrators. The arrangement of plants, floor space, etc., as well as the availability of raw materials, may play an important part in determining the packaging methods that are economically feasible. A manufacturer of dehydrated vegetables who is so situated as to ensure regular supplies of raw materials and continuous operation might, with sufficient output and floor space, well afford the machinery and other facilities for carrying out a comprehensive packaging program. In such instances, an initial outlay for machinery and equipment may prove to be a profitable investment. On the other hand, smaller dehydrators whose maximum capacities are reached only at certain intervals in the year and who are operating with limited

TABLE XVIII.—RESISTANCE OF FABRICATED PAPERBOARD AND SPECIAL LAMINATED-TYPE BAGS FILLED WITH SAWDUST AND CALCIUM CHLORIDE TO SUBMERSION IN 65° F. WATER FOR 96 HOURS

| Code | Bag Sheet Type | Condition of contents after submersion for 24 hr. | 36 hr. | 96 hr. | Remarks |
|---|---|---|---|---|---|
| | | Paperboard | | | |
| RLD5 | Paperboard-cellophane | w | w | w | |
| RLD5 | Paperboard-cellophane | D | D | D | Seal failed |
| RLD5 | Paperboard-cellophane | w | w | w | Failure complete |
| | | Special Laminated | | | |
| GD5 | Parchment-cellophane | D | D | D | |
| GD5 | Parchment-cellophane | D | D | D | |
| GD5 | Parchment-cellophane | D | D | D | |
| KD1 | Plastic film ..... | D | D | D | |
| KD1 | Plastic film ..... | D | D | D | |
| KD1 | Plastic film ..... | D | D | D | |

D = Dry  w = Wet

TABLE XIX.—RESISTANCE OF FABRICATED CELLOPHANE-TYPE BAGS FILLED WITH SAWDUST AND CALCIUM CHLORIDE TO SUBMERSION IN 65° F. WATER FOR 96 HOURS

| Code | Bag Sheet Type | Condition of contents after submersion for 24 hr. | 36 hr. | 96 hr. | Remarks |
|---|---|---|---|---|---|
| DD9 | Laminated cellophane. | D | D | D | |
| DD9 | Laminated cellophane. | D | D | D | |
| DD9 | Laminated cellophane. | D | D | D | |
| DD10 | Laminated cellophane. | D | D | D | |
| DD10 | Laminated cellophane. | D | D | D | |
| DD10 | Laminated cellophane. | w | w | w | Seal failed |
| ED1 | Paper-cellophane .... | D | D | w | Seal failed |
| ED1 | Paper-cellophane .... | D | D | D | |
| GMD1 | 2-ply cellophane ..... | D | D | D | |
| GMD1 | 2-ply cellophane ..... | D | D | w | Seal failed |
| GMD4 | Laminated cellophane. | D | D | D | |
| GMD4 | Laminated cellophane. | D | D | D | |
| GMD5 | 2-ply cellophane ..... | D | D | w | Seal failed |
| GMD5 | 2-ply cellophane ..... | D | D | w | Seal failed |
| GMD6 | Laminated cellophane. | D | D | w | Seal failed |
| GMD6 | Laminated cellophane. | D | D | D | |
| STD1 | S'gle walled cellophane | D | D | w | Seal failed |
| STD1 | S'gle walled cellophane | D | D | D | |
| STD2 | D'ble walled cellophane | D | D | | |
| STD2 | D'ble walled cellophane | D | D | D | |
| STD2 | D'ble walled cellophane | D | D | D | |
| TSD4 | Paperboard-cellophane | D | D | w | Seal failed Softening |
| TSD4 | Paperboard-cellophane | D | D | D | |

D = Dry  w = Wet

TABLE XX.—EFFECT OF 72-HOUR STORAGE AT −20° F. ON EFFICIENCY OF CONTAINER BAGS

| Code | Bags or Pouches Type | Condition of Packages after 72 hr. at −20° F. Visible Effects | Results after Dropping one foot |
|---|---|---|---|
| | | Withstood Low Temperature | |
| DD9 | Laminated cellophane | Sheets partly separate | No apparent effect |
| DD10 | Laminated cellophane | Sheets partly separate | No apparent effect |
| FD3 | Coated glassine | Sheets partly separate | No apparent effect |
| GD5 | Parchment-cellophane | Seals readily loosen | No apparent effect |
| TSD4 | Paperboard-cellophane | No apparent effect | No apparent effect |
| YD1 | Paper, cellophane, etc. | No apparent effect | No apparent effect |
| | | Ineffective at Low Temperature | |
| BD1c | Wax coated paper | Seams readily open | Seams break open |
| BD2a | Wax coated paper | Wax flakes off | No apparent effect |
| BD2c | Wax coated paper | Seals break open | No apparent effect |
| BD8 | Waxed parchment | Becomes brittle | Breakage complete |
| FD1 | Waxed glassine | Breaks readily. Wax flakes off | No apparent effect |
| GMD1 | 2-ply cellophane | Breaks at creases | Breakage complete |
| GMD4 | Laminated cellophane | Breaks at creases | No apparent effect |
| GMD5 | 2-ply cellophane | Breaks at creases | Breakage complete |
| GMD6 | Laminated cellophane | Lacks sufficient strength | Breakage complete |
| STD1 | Single-walled cellophane | Breaks readily | Breaks open |
| STD2 | Double-walled cellophane | Breaks readily | Breakage complete |

capital, may prefer a type of package that requires less extensive equipment and comparatively little initial capital outlay. For these reasons, it will probably be advisable to allow alternative packages, available to those packing dehydrated foods for Army shipments overseas. This procedure does not assume any lessening of the stringent requirements which all packages must meet, including those finally submitted as alternative packages. All should meet the very highest type of performance under carefully compiled specifications.

In arriving at a satisfactory package for dehydrated foods, it seems imperative that those interested in testing materials and packages formulate standard procedures applicable to the various products employed. Furthermore, definite performance requirements should be outlined in order that plant operators may have some guide to follow in the manufacture of sheets and in the conversion of these materials into satisfactory packages.

The tests which are of the greatest use in selecting or rejecting either sheets or fabricated packages include water penetration, water vapor permeability, sawdust-calcium chloride tests, resistance to submersion, resistance to high and low temperatures followed by some standard tumbling technique.

There is need for standardization of methods to determine the resistance of packages to rough handling. A number of tests have been suggested including several procedures that are now followed in well-qualified laboratories. Dropping from various heights on the corners of the final containers, rolling them downstairs for a given number of steps, subjecting packages to tumbling and also to high and low temperatures, are representative tests which may furnish a valuable index to the stability and ruggedness of final containers. In the present investigation on the testing of packages, it was found that storage at −17 to −20°F., followed by impact and handling procedures, and then submersion in water for 96 hours, provide one of the most stringent series of tests now available. Packages resisting such treatment, and, in addition, allowing less than 0.5% weight increase in dry sawdust when stored for 10 weeks at 105°F., and 85% R. H. should show considerable promise for serious consideration in packaging dehydrated vegetables, in bulk, for Army shipments.

Little promise is shown as yet for any of the paper and paperboard products or other materials studied, in packaging dehydrated carrots or cabbage. These two vegetables, particularly, require storage in an inert atmosphere and none of the paper or paperboard packages submitted for test can be made sufficiently tight and impervious to retain carbon dioxide or nitrogen over any considerable period of time.

### Conclusion

There is need for a generally accepted standard procedure for the testing of materials for the packing of bulk, dehydrated vegetables, based primarily on performance and certain physical specifications of the sheet materials. A study of over 150 sheet materials, using a suggested routine precedure for examination, indicated that less than 10 types of sheets have characteristics which make them acceptable for use in making packages for bulk dehydrated vegetables. Sufficient ruggedness to withstand impact and tumbling, particularly at low temperatures, is the specification most difficult to meet.

# United States Patents on Papermaking

## First Quarter, 1943

**Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography; TAPPI**

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Because, of the rule, only one claim is published in the Gazette, it is not claimed that the list is complete; also, it is possible that the list may contain some patents which do not apply to pulp and paper manufacture.

Copies of any of the following patents may be obtained from the U. S. Patent Office, Washington, D. C., by sending ten cents for each patent desired. The number, name of the inventor, and the title of the patent should be given in the request. Personal checks and postage stamps are not accepted in payments for patents. Books of coupons may be purchased for two or ten dollars, good for 20 or 100 patents. Coupon orders do not have to be accompanied by letters of transmittal.

### January 5, 1943

2,307,022. Pulp molding machine and distributing device. Merle P. Chaplin, assignor to Chaplin Corporation, South Portland, Maine. Filed May 6, 1937. 17 claims. (Cl. 92-56).

2,307,057. Transparent film. James A. Mitchell, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Aug. 7, 1940. 19 claims. (Cl. 117-146). The moistureproofing composition comprising 1 to 10% of wax, 30-70% chlorinated rubber, 0-40% of plasticizer, and 1-5% transparentizing halogenated paraffin wax containing at least one halogen atom for each 15 carbon atoms, the ratio of halogenated paraffin wax to chlorinated rubber being within the range 1:1.5 to 1:50; the composition may be applied to a thin, flexible sheet material.

2,307,124. Method of packaging and dispensing fluid substances. Reynolds Guyer and Russell J. Hennessey, assignors to Waldorf Paper Products Company, St. Paul, Minn. Filed Oct. 31, 1941. 6 claims. (Cl. 93-3).

2,307,137. Process for bleaching wood pulp. Absalom M. Kennedy, assignor of one-half to Stewart J. Lloyd, University, Ala. Filed Jan. 23, 1939. 8 claims. (Cl. 8-105). Use is made of a continuously circulated and regenerated solution of sodium chloride-sodium hypochlorite of a substantially constant hypochlorite concentration; pulp is continuously floated upwardly and countercurrently through the solution and withdrawn from the upper surface as it acquires the necessary bleach.

2,307,142. Method of and apparatus for superposing and severing webs. Harry E. Lee, assignor to St. Regis Paper Company, New York, N. Y. Filed Oct. 25, 1941. 6 claims. (Cl. 270-52). A method of perforating paper through superposed webs.

2,307,232. Coated abrasive. Nicholas E. Oglesby, assignor to Behr-Manning Corporation, Troy, N. Y. Filed July 16, 1936. 5 claims. (Cl. 51-295). The softened backing of the waterproof sandpaper contains glycerol, sorbitol and triethanolamine oleate and has superimposed upon its area a semidrying oil, a waterproof binder for abrasive grains.

2,307,239. Modified clay. Ben W. Rowland, assignor to Edgar Brothers Company, Metuchen, N. J. Filed Sept. 26, 1939. 17 claims. (Cl. 106-288). The clay is heated at 600-1200° C. and treated to reduce its particle size to produce a coated surface susceptible of being calendered to a smoothness of at least about 300 Bekk.

2,307,342. Self-molding counter. Edward H. Voigtman and Harry B. Kellogg, assignors to Paper Patents Company, Neenah, Wis. Filed May 5, 1941. 5 claims. (Cl. 36-68). A multiply shoe stiffener comprises a backing ply of felted and compacted cellulosic fibers held together by a binder containing rubber and a stiffening ply composed of cellulosic fibers held together by cooked starch primary binder and a rubber secondary binder.

2,307,452. Slitting and scoring machine. Harry L. Cohen, assignor to S. & S. Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Filed Aug. 7, 1940. 14 claims. (Cl. 164-60).

2,307,461. Sheeted abrasive. Durward O. Guth, assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed May 2, 1928. 24 claims. (Cl. 51-295). An abrasive article comprising abrasive grains bounded by a protein, flexibility augmenting and extending agent and an insolubilizing agent.

2,307,639. Method of making felted sheets. Robert G. Quinn and Harry Larison, assignors to Johns-Manville Corporation, New York, N. Y. Filed July 26, 1937. 3 claims. (Cl. 92-20). Rags are cut to pass through a screen having closely spaced holes adapted to pass fibers of the length desired in the finished product and subjecting the fibers to the action of water at a temperature from 100° C. to the temperature of steam at 200 pounds per square inch pressure, with preservation of the length of the fibers, making a dilute aqueous suspension of the fibers and forming a felt therefrom.

2,307,649. Measurement or indication of the thickness of thin sheets, coatings, and the like. Henry V. Turner and Edward A. Fielding, assignors to The General Electric Company Limited, London, England. Filed March 31, 1939. 6 claims. (Cl. 33-147).

2,307,684. Hans O. Kauffmann, Paul H. Margulies and Joseph R. Ryan, assignors to Buffalo Electro-Chemical Company, Inc., Buffalo, N. Y. Filed July 12, 1940. 9 claims. (Cl. 127-33). The starch is treated above the gel point with a peroxide in the presence of sufficient copper to catalyze the liquefying action of the peroxide.

2,307,698. Manufacture of abrasive articles. Romie L. Melton, Albert L. Ball and Raymond C. Benner, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed May 20, 1942. 12 claims. (Cl. 51-294).

### January 12, 1943

2,307,746. Drive mechanism for papermaking machines. Bernard A. Malkin, assignor to Dominion Engineering Works, Limited, Lachine, Quebec, Canada. Filed May 26, 1941. 6 claims. (Cl. 74-405).

2,307,889. Method and apparatus for cutting webs. Paul Korsgaard, assignor to Johnson & Johnson, New Brunswick, N. J. Filed Aug. 13, 1941. 22 claims. (Cl. 164-22). A method of forming filter disks by the use of a series of cutting dies.

2,307,890. Method of forming casings, bags, or the like. Eino E. Lasko, assignor to Clarence W. Vogt, Norwalk, Conn. Filed Oct. 18, 1939. 4 claims. (Cl. 93-35).

2,307,907. Machine for the production of bags and the like. Peter Becker; vested in the Alien Property Custodian. Filed Aug. 1, 1940. 2 claims. (Cl. 93-62).

2,307,909. Method of making embossed seals. Ray S. Avery, Los Angeles, Calif. Filed Oct. 8, 1940. 6 claims. (Cl. 154-2).

2,308,010. Apparatus for folding and closing cartons. Ephraim G. Horowitz, Brooklyn, N. Y. Filed Aug. 2, 1940. 16 claims. (Cl. 93-6).

2,308,065. Method of making expansion joints. Clarence R. Eckert, assignor to The Celotex Corporation, Chicago, Ill. Filed Dec. 10, 1938. 6 claims. (Cl. 117-140). A method of treating fiber board with an asphaltic saturant.

2,308,161. Drying. George R. Eckstein and Oscar W. Diverall, assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed April 19, 1941. 12 claims. (Cl. 34-41). Process of drying continuous cellulosic webs.

2,308,173. Process of making building material. Norman P. Harshberger, assignor to Carbide and Carbon Chemicals Corporation, New York, N. Y. Filed July 23, 1937. 7 claims. (Cl. 18-60). A process of preparing roofing and siding.

2,308,185. Adhesive composition. Wesley N. Lindsay and Harold C. Lietz, assignors to The Arabol Manufacturing Company, New York, N. Y. Filed Aug. 23, 1940. 3 claims. (Cl. 106-157). An iceproof glue of a gel forming protein and starch and a water-soluble thiocyanate.

2,308,364. Separation and recovery of potassium compounds from magnesium bisulphite cooking liquor. Raymond S. Hatch, assignor to Weyerhaeuser Timber Company, Longview, Wash. Filed July 23, 1941. 3 claims. (Cl. 23-48). A method of concentrating and burning the waste liquor from a magnesium bisulphite cooking acid to recover heat, magnesium oxide and sulphur dioxide, recombing the magnesium oxide and sulphur dioxide to form fresh cooking acid, and periodically removing soluble potassium salts extracted from the wood by leaching with water.

2,308,370. Hydraulic inlet system for papermaking machines. William R. Kellett and Huron C. Brien, assignors to Paper Patents Company, Neenah, Wis. Filed Aug. 19, 1939. 16 claims. (Cl. 92-44). A slice plate having a rigid vertical lip in slidable contact with the front bearing surface and formed with a beveled lower edge, means for pressing the lip against the bearing surface and for raising and lowering the plate and lip.

### January 19, 1943

2,308,564. Recovery of cellulose and lignin from wood. Ralph H. McKee, New York, N. Y. Filed May 13, 1938. 17 claims. (Cl. 92-9). Lignin-containing cellulose material is cooked at about 150° C. in a hydrotropic solution which comprises essentially an aqueous solution of a readily soluble salt of an acid derived from and containing a single benzene ring of a concentration of over 10%.

2,308,574. Felt conditioning device for papermaking machines. Frederick W. Vickery, assignor to Vickery Incorporated, Boston, Mass. Filed July 16, 1937. 6 claims. (Cl. 92-50). A conditioner unit comprises means for applying a conditioning fluid to a narrow width of felt and withdrawing it by suction, with means for treating the whole width of the felt.

2,308,664. Coating composition. Arthur E. Young and Richard D. Freeman, assignors to The Dow Chemical Company, Midland, Mich. Filed Sept. 21, 1940. 3 claims. (Cl. 106-170). A surface treating composition consists of an emulsion of 1-15 parts of a wax in an aqueous ammoniacal solution of 1 part by weight of aluminum cellulose glycolate.

2,308,692. Greaseproof paper. Richard D. Freeman, Floyd C. Peterson and George K. Greminger, Jr., assignors to The Dow Chemical Company, Midland, Mich. Filed March 6, 1941. 2 claims. (Cl. 117-157). A method for greaseproofing paper consists in treating at least one surface with an aqueous solution of aluminum cellulose glycolate and ammonia.

2,308,942. Laminated plasterboard. William C. Teasdale, Los Angeles, Calif. Filed May 5, 1941. 7 claims. (Cl. 72-124). A plaster body formed of plaster laminations and a partition disposed between and adhered to the laminations.

2,309,056. Insulating material. Joseph L. Finck, Brooklyn, N. Y. Filed May 14, 1941. 2 claims. (Cl. 154-45). A web of building paper in roll form, from which longitudinal portions may be severed for installation in the air spaces between the studs of a frame wall.

2,309,079. Treatment of paper. Harold S. Mitchell, assignor to Industrial Patents Corporation, Chicago, Ill. Filed Nov. 23, 1938. 5 claims. (Cl. 99-171). A wrapping paper for fats and oils that normally tend to develop rancidity has a phenol incorporated therein.

### January 26, 1943

2,309,089. Method of making paper of improved wet strength. Jordan V. Bauer and Don M. Hawley, assignors to Stein, Hall Manufacturing Company, Chicago, Ill. Filed Oct. 6, 1938. 7 claims. (Cl. 92-40). A water-soluble form of a urea and an aldehyde is added to the paper while it is in a wet state on the paper machine prior to final drying and adding separately an acid at a point where the paper is no longer to be subjected to heat; the coaction between these increases the wet strength without destroying its flexibility.

2,309,090. Treatment of paper and the like. Jordan V. Bauer and Don M. Hawley, assignors to Stein, Hall Manufacturing Company, Chicago, Ill. Filed Oct. 6, 1938. 7 claims. (Cl. 117-155). Paper is treated separately and uniformly with a formaldehyde compound, urea, and an acid reacting catalytic substance capable of penetrating the paper rapidly; the urea is added to the opposite side of the paper from the formaldehyde and the paper is immediately wound into a tight roll. The compounds are added in the proportion to increase the dry weight of the paper about 2-5%. The treatment increases the wet strength.

2,309,206. Process for the manufacture of insulation units. Nathan E. Newman, assignor to Asbestos Limited Incorporated, New York, N. Y. Filed Jan. 27, 1942. 5 claims. (Cl. 92-54). Mineral fibers and a binder of cement and silicious material are formed in a mold, cured in the presence of saturated steam, and dried.

2,309,209. Package forming and filling apparatus. Frank D. Palmer, assignor to Kraft Cheese Company. Filed July 31, 1939. 36 claims. (Cl. 93-3).

2,309,346. Noncrystallizing rosin size and method of making same. Chester G. Landes and Jack T. Cassaday, assignors to American Cyanamid Company, New York, N. Y. Filed Dec. 12, 1940. 4 claims. (Cl. 106-238). A liquid rosin size is prepared by saponifying rosin with solutions of alkalies and containing at least one mole of rosin soap for each three moles of unsaponified rosin, with a stabilizer consisting of formaldehyde and water-soluble formaldehyde condensation products.

2,309,376. Apparatus for conditioning fiber bearing materials. John Avery, Prahran, Victoria, Australia. Filed Dec. 20, 1939. 4 claims. (Cl. 92-27). A refiner for wood pulp.

2,309,469. Method of associating the edges of two paperboard web sections. Moses M. Marcuse, assignor to Bedford Pulp & Paper Company, Inc., Richmond, Va. Filed Feb. 5, 1941. 2 claims. (Cl. 164-17). A method of associating the edges of two paper board web sections while they are advancing under tension at substantially the same speed and producing therefrom a single roll of material.

2,309,483. Organic material and the preparation thereof. Joseph A. V. Turck, Jr., assignor to Colgate-Palmolive-Peet Company, Jersey City, N. J. Filed Dec. 6, 1940. 12 claims. (Cl. 252-1). The unsaponifiable matter of tall oil, boiling at not less than 60° C. at 5 mm., is treated with hydrogen in the presence of a catalyst.

2,309,565. Paper drier temperature control. Adam E. Armstrong, assignor to Armstrong Machine Works, Three Rivers, Mich. Filed Aug. 19, 1940. 12 claims. (Cl. 34-41). A method of controlling the temperature of a steam-heated heat exchange element.

2,309,610. Water-soluble phenolic resin and process of making same. Harry Burrell, assignor to Ellis-Foster Company, Montclair, N. J. Filed Jan. 13, 1942. 2 claims. (Cl. 260-25). A resin suitable for a waterproofing size and binding agent for cellulosic materials consists of the simultaneous reaction product of rosin, a phenol, aqueous formaldehyde, and sodium carbonate.

### February 2, 1943

2,309,621. Packaging apparatus and method. Mervin Allatt, Plainfield, N. J., assignor to Millie Patent Holding Co., Inc. Filed July 2, 1938. 12 claims. (Cl. 93-2).

2,309,728. Production of paper board units. Walter J. Goettsch, assignor to Samuel M. Langston Co., Camden, N. J. Filed Nov. 14, 1941. 20 claims. (Cl. 164-61). A continuously operating double facer, a slitting device, a pair of cut-off mechanisms, etc.

2,309,760. Method of and apparatus for closing bags. George B. First, assignor to Stokes and Smith Company, Summerdale, Pa. Filed March 13, 1940. 10 claims. (Cl. 93-6).

2,309,929. Apparatus for applying caps to containers. Frederick L. Bronson, assignor to The Fibre Can and Machinery Company, New Haven, Conn. Filed Nov. 7, 1939. 6 claims. (Cl. 226-88.1).

2,309,981. Apparatus for coating sheet material. Chester J. Randall, assignor to United States Rubber Company, New York, N. Y. Filed Nov. 30, 1939. 3 claims. (Cl. 91-43). An apparatus for applying liquid to the surface of sheet material.

2,309,993. Drier control. Rutcher Skagerberg, assignor to The Brown Instrument Company, Philadelphia, Pa. Filed Aug. 13, 1938. 9 claims. (Cl. 34-41). A continuous drier is divided into a plurality of sections and the temperature of each section is controlled.

2,310,005. Dry size and method making. Ernest S. Wilson, assignor to Hercules Powder Company, Wilmington, Del. Filed April 18, 1940. 6 claims. (Cl. 106-218). A high density dry size is prepared by spraying liquid or paste size into a blow chamber to provide a size having a moisture content of 1-10%, compacting the size particles to a density greater than 20 pounds per cubic foot, and collecting particles of a size between about minus 20 and plus 80 mesh.

2,310,010. Nitrolignin molding composition and process of making same. Harry Burrell, assignor to Ellis-Foster Company, Montclair, N. J. Filed March 16, 1939. 15 claims. (Cl. 260-9). A molding composition containing a binder consisting essentially of a nitro-lignin-aldehyde reaction product and a cellulosic fiber. The binder is obtained by reaction acid lignin with nitric acid in an alcohol and an aldehyde (formaldehyde or furfural).

2,310,046. Method of refining sulphate turpentine and tall oil. Floyd Trimble, assignor to The Quaker Oats Company, Chicago, Ill. Filed Aug. 3, 1940. 19 claims. (Cl. 260-97.5). A mixture of crude sulphate turpentine and tall oil is purified by mixing with furfural or its reduction product. The lower layer contains the color and odor producing bodies.

2,310,153. Machine for cutting flexible sheet material. Albert D. Rosenfarb, Winthrop, Mass. Filed Jan. 1, 1942. 12 claims. (Cl. 164-36).

### February 9, 1943

2,310,216. Wallboard. Dean D. Crandell, assignor to National Gypsum Company, Buffalo, N. Y. Filed Nov. 22, 1939. 8 claims. (Cl. 154-45.9). The enclosing envelope consists of a paper sheet formed of relatively short, weak, waste fibers in contact with the core and of relatively long, strong, chemical fibers in the exposed surface, the sheet weighing less than about 45 pounds per 1000 square feet.

2,310,217. Wallboard. Dean D. Crandell, assignor to National Gypsum Company, Buffalo, N. Y. Filed Nov. 22, 1939. 2 claims. (Cl. 154-45.9). The facing sheet is a multiply paper, having a thickness less than 0.015 inch and a weight less than 45 pounds per 1000 square feet; the exposed surface is a ply of waste fibers and the bonded surface is a ply of chemical fibers and 8-30% of waste fibers.

2,310,292. Gummed body. Ferdinand W. Humphner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed Aug. 5, 1940. 5 claims. (Cl. 117-76). The surface has a layer of active water-soluble adhesive substantially nonresistant to high humidities and a very thin continuous coating of polyvinyl alcohol ,which is readily soluble in water.

2,310,382. Method and means for sealing containers. Howard G. Allen, assignor to Consolidated Packaging Machinery Corporation, Buffalo, N. Y. Filed Feb. 2, 1940. 28 claims. (Cl. 93-6).

2,310,400. Form liner. Clayton O. Crane and Patrick J. Mulligan, assignors to United States Rubber Company, New York, N. Y. Filed Jan. 18, 1940. 10 claims. (Cl. 25-122). A face liner for concrete comprises wood pulp with a water-absorptive, air-permeable surface substantially nonadherent to concrete on one side of the sheet.

2,310,415. Method of and apparatus for controlling digesters. Webster W. Frymoyer, assignor to The Foxboro Company, Foxboro, Mass. Filed Dec. 1, 1938. 18 claims. (Cl. 92-7). Method of controlling the gas release

from a digester by continually releasing air from the vapor space in accordance with the difference between the total pressure in the digester and the vapor pressure of water at the initial condensing temperature of the gases in the vapor space.

2,310,421. Corrugator. Henry B. Greenwood, assignor to F. X. Hooper Company, Inc., Glen Arm, Md. Filed Sept. 1, 1939. 6 claims. (Cl. 154-30). A modification of a corrugating machine having a plurality of cooperating corrugator rollers.

2,310,693. Satin white and method of making the same. Gerald Haywood, assignor to West Virginia Pulp and Paper Company, New York, N. Y. Filed June 12, 1942. 14 claims. (Cl. 106-306). Sulphur dioxide is dissolved in an alum solution and the resulting solution is added to a milk or lime suspension.

### February 16, 1943

2,310,946. Facsimile recording paper. William G. H. Finch, Newton, Conn. Filed April 7, 1939. 2 claims. (Cl. 204-2). A comparatively dark conductive paper is uniformly coated with a comparatively light electrosensitive coating of a mixture of titanium dioxide, a conductive metallic powder, aniline hydrochloride, and potassium nitrate.

2,310,998. Sound record and method of making the same. Edward E. Sawyer, assignor to The Canal National Bank of Portland, Portland, Maine. Filed May 27, 1941. 4 claims. (Cl. 92-55). The record is formed of an aqueous pulp mixture and a comminuted water-insoluble uncured synthetic resin.

2,311,017. Envelope machine. Gustaf W. Anderson, assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass. Filed Jan. 10, 1940. 6 claims. (Cl. 226-56).

2,311,244. Method of making friction material. Izador J. Novak, assignor to Raybestos-Manhattan, Inc., Bridgeport, Conn. Filed Feb. 9, 1939. 10 claims. (Cl. 92-21). A method of binding asbestos fibers with a varnish base.

2,311,271. Adhesive. Willis C. Ware, assignor to Industrial Abrasives, Inc., Chicago, Ill. Filed Nov. 9, 1938. 2 claims. (Cl. 106-82). A hard bonding heat resisting adhesive consists of 350 parts of a low-ratio sodium silicate, 1.75 parts of sulphonated castor oil, 100 parts of aluminum silicate, 7 parts of zinc oxide, and 25 parts of a coloring agent (umber and sienna).

2,311,272. Adhesive. Willis C. Ware, assignor to Industrial Abrasives, Inc., Chicago, Ill. Filed Feb. 6, 1939. 9 claims. (Cl. 106-82). An adhesive is a mixture of low-ratio and high-ratio sodium silicates, together with aluminum silicate, silica, calcium carbonate or magnesium silicate.

2,311,289. Method of increasing the plasticity of portland cement mixtures. Robert B. Booth, assignor to American Cyanamid Company, New York, N. Y. Filed May 21, 1940. 2 claims. (Cl. 106-92). Black liquor (0.001-0.01% on the basis of the dry Portland cement in the mixture) is added to a Portland cement-water mixture.

2,311,301. Water dispersed adhesive composition and articles comprising the same. Harvey J. Livermore, assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed Aug. 3, 1940. 4 claims. (Cl. 260-745). The adhesive consists of reclaim rubber, a high melting point asphalt, and wood rosin, worked together at 200° F.

2,311,309. Method of and apparatus for treating fibrous containers. Harold A. Bergstrom, assignor to The Container Company, Van Wert, Ohio. Filed Oct. 22, 1940. 12 claims. (Cl. 34-21). A hollow container of fiber board coated on one surface is heated for 1-2 minutes at 400-600° F. while simultaneously cooling the other surface of the wall.

2,311,386. Art of stabilizing tall-oil materials. Torsten Hasselstrom, assignor of one-half to G & A Laboratories, Inc., Savannah, Ga. Filed March 6, 1940. 13 claims. (Cl. 260-97.5). Tall oil containing an unstable resin acid component is heated with 0.1-3% of iodine at 100-240° C. for 1-2 hours or until the Steele abietic acid has substantially disappeared.

2,311,589. Method of making scored wallboard. Harry Feder, assignor to Barclay Manufacturing Co., Inc., New York, N. Y. Filed June 26, 1941. 7 claims. (Cl. 41-17). A method of decorating wallboard by adding a primer coat and cutting spaced grooves through this coat.

2,311,590. Scored wallboard. Harry Feder, assignor to Barclay Manufacturing Co., Inc., New York, N. Y. Filed June 26, 1941. 13 claims. (Cl. 20-5). A wallboard having a flat finished surface with spaced grooves therein.

2,311,609. Hot-melt coating composition. Toivo A. Kauppi and Myron Kin, assignors to The Dow Chemical Company, Midland, Mich. Filed April 23, 1940. 6 claims. (Cl. 260-14). The composition consists of 1-20% of hydrogenated rosin and 100 parts of the following mixture: 20-25% (by weight) of a lower alkyl (1-4 carbon atoms) ether of cellulose, 25-80% of a wax (true waxes, wax-like esters, and wax-like alcohols), not over 40% of nonthermosetting resin, not over 20% of plasticizer and 5-30% of mineral wax.

### February 23, 1943

2,311,675. Method of sealing fiber cans. Donald G. Magill, assignor to American Can Company, New York, N. Y. Filed March 19, 1941. 3 claims. (Cl. 93-55.1).

2,311,692. Trimming mechanism. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Dec. 23, 1941. 7 claims. (Cl. 164-61). A trimming mechanism for bag making machines.

2,311,698. Scoring machine. Basil F. Saubestre, assignor to American Can Company, New York, N. Y. Filed Dec. 3, 1941. 3 claims. (Cl. 164-61).

2,311,733. Paper or the like bag. Robert P. Bushman, assignor to St. Regis Paper Company, New York, N. Y. Filed Dec. 4, 1939. 6 claims. (Cl. 229-55). A multiply bag with one moisture-impervious ply.

2,311,813. Paper pulp screen. Erich A. Beck, New York, N. Y., and Ralph E. Cleveland, Waterbury, Conn. Filed Aug. 2, 1939. 1 claim. (Cl. 92-32). A flat screening surface of "nonsubmerged" type—that is, the surface of the plate is not submerged below the average level of the liquid in the screening vat. The relative motion of stock and screen is unidirectional.

2,311,831. Moistureproofing coating composition. George S. Heaven and William Berry, assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed March 1, 1940. 2 claims. (Cl. 260-16). A moistureproofing composition for regenerated cellulose sheets consists of nitrocellulose 40, paraffin wax 2, ethylacetate 400, toluene 160, alkyd resin 10, and dibutyl phthalate 30 parts, heated at 40° C. for 15 days.

2,311,854. Device for making perforated resilient covered rolls. William M. Nash, Menasha, Wis., assignor of one-half to Stanley A. Martin, De Pere, Wis., and one-eighth each to Marie D. Nash, Mary N. Jones and Roy A. Nash. Filed July 23, 1941. 6 claims. (Cl. 18-36). Device for molding a perforated resilient cover on a perforated metallic cylindrical shell to form a covered roll for a papermaking machine.

2,311,885. Seam for woven wire fabric. William J. Taylor, assignor to Wilson Wire Works, Inc., Kearny, N. J. Filed Nov. 19, 1941. 1 claim. (Cl. 245-10).

2,311,911. Coating composition containing shellac. Robert C. Swain and Pierrepont Adams, assignors to American Cyanamid Company, New York, N. Y. Filed Oct. 31, 1940. 4 claims. (Cl. 260-24). A coating composition contains shellac and a melamine-formaldehyde resin which has been alkylated with an alcohol.

2,312,010. Photometer. Johannes A. Van den Akker, assignor to The Institute of Paper Chemistry, Appleton, Wis. Filed Aug. 3, 1940. 23 claims. (Cl. 88-14).

2,312,162. Manufacture of dry-sealing envelopes. Vincent E. Heywood, assignor to United States Envelope Company, Springfield, Mass. Filed July 15, 1940. 20 claims. (Cl. 93-62).

2,312,172. Slitting machine. Robert McC. Johnstone, Bondsville, Pa. Filed Jan. 30, 1942. 9 claims. (Cl. 164-65).

2,312,173. Slitter unit assembly. Robert McC. Johnstone, Bondsville, Pa. Filed Jan. 31, 1942. 6 claims. (Cl. 164-65).

2,312,210. Stable formaldehyde-urea composition containing a hardening agent. William C. Dearing, Toledo, Ohio. Filed July 18, 1940. 5 claims. (Cl. 260-69). A hardenable water-soluble formaldehyde-urea reaction product is mixed with an ammonium salt; upon addition of water this forms a self-hardening adhesive solution.

### March 2, 1943

2,312,301. Heat insulating material. Channing Turner and Bernard J. Brady, assignors to Alfol Insulation Company, Inc., New York, N. Y. Filed April 19, 1940. 3 claims. (Cl. 154-45).

2,312,310. Papermaking. Donald B. Bradner and George C. Munro, assignors to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed March 1, 1939. 6 claims. (Cl. 92-75): A combination of a photoelectric cell for detecting deviations in the gloss of paper from a calender and a motor for varying the gloss-producing capacity of the calender, with means for increasing or decreasing the gloss-producing capacity of the calender, when the gloss of the paper exceeds the predetermined value.

2,312,387. Froth flotation of acidic minerals. Ludwig J. Christmann, David W. Jayne, Jr., and Stephen E. Erickson, assignors to American Cyanamid Company, New York, N. Y. Filed Sept. 4, 1940. 3 claims. (Cl. 209-166). The concentration operation is carried out in the presence of a promoter for the acidic ore material, consisting of a reaction product of polyalkylene polyamines, with tall oil and salts thereof.

2,312,519. Balanced seal for suction rolls. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed June 10, 1939. 11 claims. (Cl. 92-53). An improvement in the seal between the suction gland and the cylinder of a suction roll.

2,312,545. Centrifugal screening machine for paper stock and similar material. Anton J. Haug, Nashua, N. H. Filed April 5, 1939. 6 claims. (Cl. 92-35).

2,312,675. Pulp screen and washer. Carl Scheiding, Middletown, Ohio, assignor of one-half to F. C. Zart, Cincinnati, Ohio. Filed Dec. 8, 1939. 3 claims. (Cl. 92-32). An individual screening unit adapted to be used in the screening of pulp and its washing.

2,312,678. Dandy roll construction. John A. Spencer, assignor to H. M. Spencer, Inc., South Hadley Falls, Mass. Filed May 5, 1941. 8 claims. (Cl. 92-48).

2,312,706. Method and apparatus for separating heavy particles from paper pulp suspensions. Horace Freeman, assignor to Nichols Engineering & Research Corporation, New York, N. Y. Filed Nov. 19, 1938. 2 claims. (Cl. 92-28).

2,312,710. Mechanical fabric. Carlton C. Gordon, assignor to Albany Felt Company, Albany, N. Y. Filed March 18, 1940. 4 claims. (Cl. 117-101). The fabric is treated by immersion in a liquid which, when dry, will form a water-insoluble and water-repellent coating on the fibers, removing the excess by centrifugal action and thereafter drying the fabric.

2,312,726. Hydraulic calender. George C. Munro, assignor to The Champion Paper Company, Hamilton, Ohio. Filed March 1, 1939. 3 claims. (Cl. 92-75).

2,312,729. Bagmaking machine. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Aug. 3, 1940. 8 claims. (Cl. 93-8).

2,312,807. Resinous product from cellulosic substances. Eduard Färber, assignor to Polyxor Chemical Co., Inc., New Haven, Conn. Filed Oct. 24, 1939. 10 claims. (Cl. 260-9). About equal quantities of cellulosic material and the resin acids or mixtures of such acids and the fatty acids as found in tall oil are heated to about 300° C. until resinification occurs.

2,312,831. Indurated fibrous material and process of making the same. Armin Elmendorf, Winnetka, Ill. Filed June 22, 1940. 15 claims. (Cl. 117-65). The face of a board of the fibrous porous insulating board type is covered with hardwood pitch and heated in a hot press to about 175° C. under some pressure for 0.75-4 minutes.

2,312,853. Applicator roll. William C. Toland and Ellis Bassist, assignors to William C. Toland, Brookline, Mass., as trustee. Filed Feb. 26, 1940. 6 claims. (Cl. 91-67.8). A fountain solution roller, the fabric covering including a coating of polyvinyl alcohol.

2,312,927. Coating of paper. John D. Murray, assignor to Murray Liquafilm Corporation, Chicago, Ill. Filed Sept. 22, 1938. 1 claim. (Cl. 91-33). A method for applying a thermoplastic coating material, including a bath, a deposit roll, a doctor blade and a heated smoothing member.

2,312,969. Apparatus for controlling in grading, draining, or washing fibrous suspended material. Nils W. Jönsson, Obbola, Sweden. Filed Dec. 17, 1938. 2 claims. (Cl. 92-33). A screening member and means for controlling its vibrations according to the rise and fall of the level of the pulp suspension.

2,312,978. Process for treating wood blocks for suction box covers and the like. Jean Proulx, Hull, Quebec, Canada. Filed Sept. 20, 1940. 1 claim. (Cl. 117-149). A method of removing the air from the cell interior of the wood and impregnating the evacuated wood with a molten mixture of lanolin and a normally very hard paraffin wax at 212° F. and 20-26 mm. of mercury.

2,312,987. Heat insulating panel. Donald D. Grassick, assignor to Alfol Insulation Company, Inc., New York, N. Y. Filed Nov. 15, 1939. 7 claims. (Cl. 154-45).

### March 9, 1943

2,313,039. Adhesive composition and method of making the same. Roland D. Earle, assignor to Union-Baystate Co., Inc., Cambridge, Mass. Filed June 13, 1940. 2 claims. (Cl. 260-32). A liquid adhesive consists of unplasticized neoprene in toluene containing a small amount of morpholine.

2,313,114. Adhesive. Benjamin F. Adams, assignor to Armstrong Cork Company, Lancaster, Pa. Filed June 11, 1938. 6 claims. (Cl. 106-241). A mixture of a solution of resin and a filler in such relative proportions that the composition when dried and solidified is rupturable within the range of from 6-30 pounds as determined by the "Scott test."

2,313,200. Process and apparatus for the manufacture of cardboard boxes for packing of eggs, fruit and the like. Peter Emil Vil-

helm Jacobsen, vested in the Alien Property Custodian. Filed April 23, 1940. 1 claim. (Cl. 93-37). An apparatus for folding cardboard boxes and the like made of a V-bent cardboard strip.

2,313,441. Nitrated lignocellulose. Edwin C. Jahn and Sydney Coppick, Syracuse, N. Y. Filed March 25, 1940. 2 claims. (Cl. 260-220). A method of nitrating a lignocellulosic material containing about 6% lignin at a temperature of 0-30° C.

2,313,497. Method of coating paper. Harry J. Adrian, assignor to Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. Filed Jan. 12, 1940. 2 claims. (Cl. 92-40). A method of coating paper of the type made on a Yankee paper machine to form uniformly smooth surface suitable for printing.

2,313,574. Apparatus for and method of continuously cooking starch. Charles F. Payne, assignor to Eastman Kodak Company, Rochester, N. Y. Filed Jan. 13, 1940. 6 claims. (Cl. 127-28).

2,313,592. Safety paper and process of preparing the same. Burgess W. Smith, assignor to The Todd Company, Inc., Rochester, N. Y. Filed Sept. 26, 1940. 12 claims. (Cl. 117-1). A safety paper contains a benzidine compound having negative substituents in the 3,3'-positions and salts thereof.

2,313,609. Cover feeding, scoring, and folding means for match booking machines. Charles F. Wright, assignor to The Diamond Match Company, New York, N. Y. Filed Dec. 19, 1941. 7 claims. (Cl. 93-2).

2,313,628. Paper cap-forming machine. Edmund J. De Villers, assignor to White Castle System, Inc., Columbus, Ohio. Filed Dec. 28, 1940. 11 claims. (Cl. 223-7).

2,313,696. Tea bag and method of making the same. John Yates, assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass. Filed March 14, 1941. 10 claims. (Cl. 93-2).

### March 16, 1943

2,313,808. Copy and recording paper. Harold R. Dalton, Teaneck Township, Bergen County, N. J. Filed Feb. 26, 1941. 10 claims. (Cl. 282-28). A colored sheet having a coating the base of which consists mainly of a polyvalent metal soap held in a waxy material, which is rendered transparent by pressure thereon.

2,313,810. Copying and recording medium. Harold R. Dalton, Teaneck, N. J. Filed July 8, 1941. 4 claims. (Cl. 282-28). A printing medium comprises a support having a transfer coating consisting of a polyvalent metal soap incorporated with a binder and a quantity of pigment material.

2,314,051. Coating machine. Walter P. Osgood, assignor to Boston Machine Works Company, Lynn, Mass. Filed Feb. 28, 1939. 11 claims. (Cl. 91-51). A coating roll, means for feeding the work to the roll (a driven feed roll), a table and supporting means therefor.

2,314,135. Process of and composition for waterproofing permeable materials. Constantine F. Fabian and James B. Lee, assignors to Lee Bros., Hats, Inc., Danbury, Conn. Filed Oct. 11, 1939. 12 claims. (Cl. 106-268). A gel formed from a hydrocarbon vehicle and an aluminum salt of a fatty acid of high molecular weight of the group derived from fats and oils.

2,314,203. Battery separator. Edward Fairclough, assignor to Willard Storage Battery Company, Cleveland, Ohio. Filed Aug. 1, 1941. 6 claims. (Cl. 136-149). The sheet is formed of matted tree bark fibers of the type having a relatively high lignin content.

2,314,242. Preparation of emulsions for waterproofing and fireproofing purposes. Rotheus B. Porter, Jr., assignor to Herbert B. Morse, Wellesley Hills, Mass. Filed May 22, 1940. 4 claims. (Cl. 106-15). The emulsion consists of an organic solvent solution of thermoplastic hydrocarbon, water, and a relatively small amount of degras as dispersion stabilizer, with a water-soluble fireproofing salt.

2,314,308. Urea-aldehyde adhesive composition. Carleton Ellis, Montclair, N. J. Filed March 16, 1940. 6 claims. (Cl. 260-71). A thermosetting resin from urea and an acrylic aldehyde with a nitrohydroxy paraffin derived from a nitroparaffin and an aceylic aldehyde, the composition being substantially a dry solid and covered with a coating of wax.

### March 23, 1943

R22,292. Bag making machine and method. Rene J. Gaubert, assignor to Simplex Wrapping Machine Co., Oakland, Calif. Original No. 2,094,594, dated Oct. 5, 1937. Application for reissue July 22, 1942. 6 claims. (Cl. 93-11).

2,314,349. Flexible sheeted abrasive. Durward O. Guth, assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed March 14, 1929. 5 claims. (Cl. 51-298). A sandpaper with a waterproof adhesive consisting of a condensation product of phenol and a polyhydric alcohol.

2,314,441. Wrapper sealing machine. Francis Ross Clark and Alfred D'Antonio, assignors to Package Machinery Company, Springfield, Mass. Filed June 5, 1941. 7 claims. (Cl. 93-2).

2,314,453. Coating and filming machine and apparatus. Edward L. Mack and Earle H. Morse, assignors to Reynolds Research Corporation, Richmond, Va. Filed Nov. 13, 1939. 1 claim. (Cl. 91-43). The apparatus includes a vertically and horizontally adjustable extrusion member adapted to extrude high viscosity flat sheet coating liquid.

2,314,491. Inner packaging of corrugated board. Abbot Greenberg, assignor to Eastern Corrugated Container Corporation, Brooklyn, N. Y. Filed May 22, 1942. 4 claims. (Cl. 229-14).

2,314,515. Apparatus for internally coating containers. Paul E. Pearson, assignor to Continental Can Company, Inc., New York, N. Y. Filed Aug. 15, 1938. 15 claims. (Cl. 91-45).

2,314,519. Adhesive applying attachment. Rudolph H. Schultz and Adam J. Siebert, assignors to Schultz Engineering Corporation, Brooklyn, N. Y. Filed Aug. 3, 1940. 15 claims. (Cl. 91-14). A paste attachment for rewind machines.

2,314,658. Process of preparing wood pulp. Fredrich Olsen, assignor to The Cellulose Research Corporation, East Alton, Ill. Filed Jan. 20, 1939. 2 claims. (Cl. 92-16). A process is claimed for preparing a wood pulp having an alpha-cellulose content greater than 98% and a soda solubility of less than 4% which comprises gradually removing the non-cellulosic content from an alkaline pulp by cholrinating, washing, and then treating with an alkaline hypochlorite.

2,314,701. Laminated product. Mortimer T. Harvey, East Orange, N. J., assignor to The Harvel Corporation, East Orange, N. J. Filed Nov. 15, 1938. 2 claims. (Cl. 154-43). Sheets of cellulosic fibrous material bound together by a condensation product of formaldehyde and a mixture of carbolic acid and cardanol; the product is characterized by the fact that it can be punched at a high rate of speed at normal temperature without delamination.

2,314,797. Paper manufacture. Donald F. Morris and Leonard R. Growdon, assignors to The Mead Corporation, Chillicothe, Ohio. Filed Nov. 19, 1937. 5 claims. (Cl. 117-68). A method of forming a printing paper with reduced curling tendencies comprises coating only one side of the sheet, drying, calendering, subjecting the sheet to a wet pressing operation to incorporate 1.5-2% of moisture on the uncoated side, and lightly recalendering the moistened sheet.

2,314,820. Impregnated paper. Sumner C. Fairbanks, assignor to The Hamersley Manufacturing Company, Garfield, N. J. Filed Sept. 9, 1939. 3 claims. (Cl. 117-155). Paper of enhanced wet strength and wet-rub properties contains a carrier medium selected from the class of petroleum and petrolatum and a condensation derivative of rubber obtained by treating rubber in solution with chlorostannic acid or the like, the total weight of impregnant being no greater than 10%.

### March 30, 1943

R22,295. Process for making lignin. Edgar T. Olson, Raphael Katzen and Richard H. Plow, assignors to Northwood Chemical Company, Phelps, Wis. Original No. 2,156,159 (April 25, 1939); application for reissue April 25, 1941. 7 claims. (Cl. 260-124).

2,314,876. Bag, composite material, and method of making. Edwin D. Greene, assignor to Arkell Safety Bag Company, New York, N. Y. Filed Feb. 9, 1939. 8 claims. (Cl. 154-40). A method of making bags of a plurality of sheets of crinkled paper arranged in superposed relation.

2,315,128. Shrinkproof paper and method of manufacture and laminated product. Francis F. Newkirk, assignor to American Reenforced Paper Company, Attleboro, Mass. Filed Nov. 27, 1939. 18 claims. (Cl. 154-50). A sheet of kraft paper is impregnated with the reaction product of formaldehyde and urea; it does not shrink more than 1% in its cross direction when alternately wetted and dried seven times.

2,315,217. Process for the manufacture of tubular bodies. Carlos Obiglio, Buenos Aires, Argentina. Filed Feb. 11, 1941. 1 claim. (Cl. 93-94). A process for making a helically wound paper tube wound with a two-layer strip.

2,315,347. Coating composition. Walter K. Moffett, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed July 12, 1939. 8 claims. (Cl. 260-16). A coating composition which is highly resistant to oils and greases consists of cellulose nitrate, a nonhydroxy, nondrying vegetable oil modified alkyd resin (acid number less than 10) and 0.2-2% of an aliphatic dicarboxylic acid.

2,315,411. Sealing apparatus. Carl A. Flood, assignor to Dennison Manufacturing Company, Framingham, Mass. Filed Sept. 10, 1940. 18 claims. (Cl. 91-16). An apparatus for applying a seal to the side of a container.

## Manhattan Rubber Leases Two Farms

Leases for two large farms in Clifton have been signed by The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., in order to accommodate approximately 400 employees who wish to plant Victory Gardens this spring.

The large rubber company announced recently that it had taken an option on the 5½-acre Speer Farm but because of the large number of applicants it was found necessary to also lease the adjacent Sanders Farm of approximately 5 acres. Applications for plots were entirely voluntary on the part of employees and numbered many more than were anticipated.

The gardens will be strictly a Manhattan undertaking, with plowing, harrowing, fertilizing and other operations done by Manhattan employees at the expense of the company. This work will be done by two Manhattan employees, expert farmers who have farmed adjoining land for years.

It is planned to divide the two farms into units of approximately 20 x 40 feet, which is equal to a good sized suburban backyard garden. Employees will provide the seed and till the gardens. The plots will be grouped according to factory departments so that employees may pool their cars and assist each other with the work if they wish. A recent OPA ruling has given permission for the use of cars for Victory Garden work.

The farms have been inspected by the Passaic County Agent, who has advised the company on the preparation and fertilization of the soil. He congratulated Manhattan on the project and advised employees taking plots to attend a series of lectures on Victory Gardening.

Manhattan is believed to be the first industry in the Passaic industrial area to arrange for Victory Gardens for its employees. The object is to combat expected food shortages and to provide a wholesome hobby for employees, made necessary by war-time restrictions on other recreations.

James J. De Mario is chairman of the Manhattan Victory Garden Committee, assisted by L. S. Hilton.

# *Mr. Sulfite Superintendent!*

"Summer, with the temperature of cooling water mounting upward, is generally a forecast for the Sulfite Superintendent to look for trouble;—trouble that slows up digester cooks or reduces the yields of pulp."

## Cooking Acid plus "ESOTOO"

The fortification of acid with *ESOTOO is an important part of the answer for solving summer slumps. Here is a method of controlling free $SO_2$ percentages, flexible enough to adapt itself readily to the varying demands of production and to emergency application when breakdowns occur. *ESOTOO is immediately available; its use does not depend upon costly, hard-to-obtain or special equipment. Isn't it worth investigation?

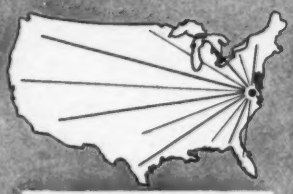
*ESOTOO is Virginia's Trade Name for Liquid Sulfur Dioxide

**About Shipments—**

Portable cylinders containing 150 lb., semi-portable drums containing 2000 lb. liquid $SO_2$. L. C. L. or carload.

Carload: 15 drums on multi-unit car frame; 30,000 lb. For users without storage facilities.

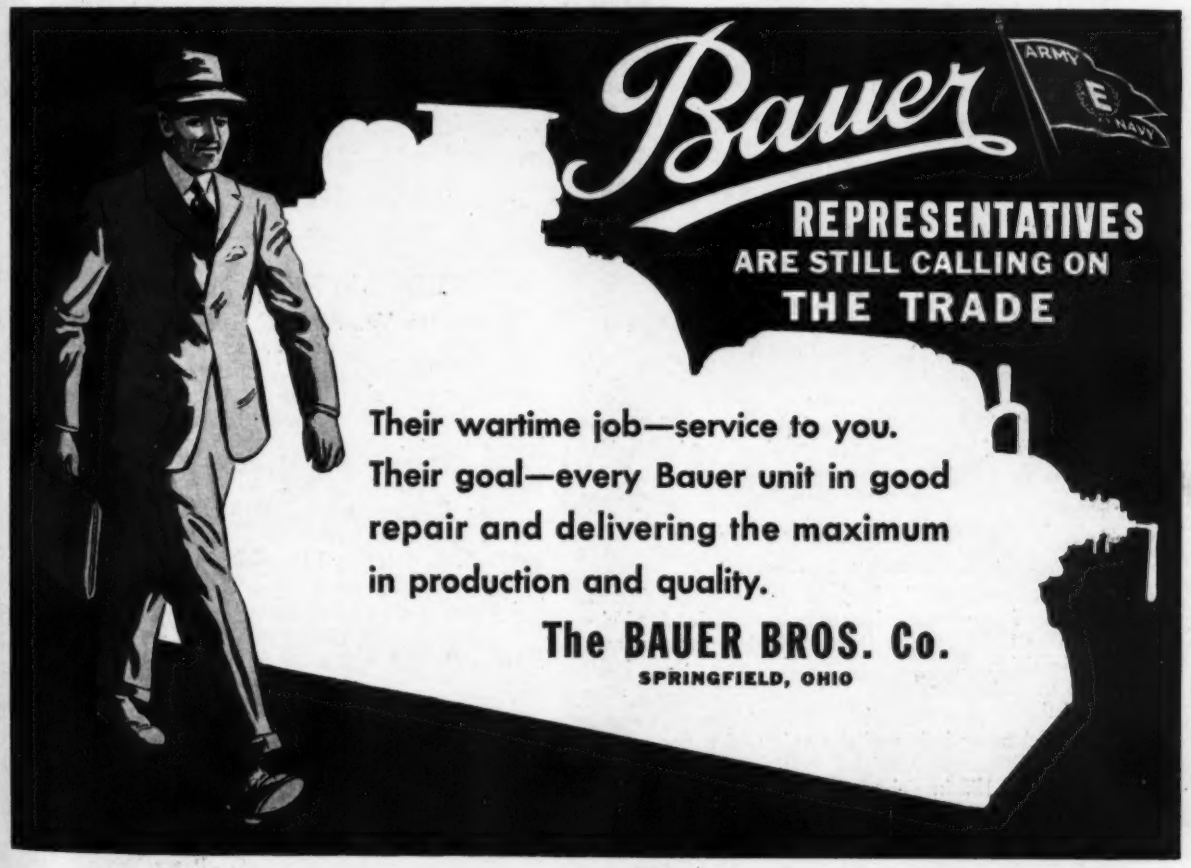
Tank car lots of 40,000 lb. for users equipped with storage facilities.



Prompt shipment from the strategically located works of the largest producer of liquid sulfur dioxide in the U. S.

V VIRGINIA

**VIRGINIA SMELTING COMPANY**
**WEST NORFOLK, VIRGINIA**



## TAPPI Notes

Paul Torre, formerly of the A. E. Staley Company, is now in the Materials Testing Laboratory, Signal Corps, Ground Service School, Fort Monmouth, N. J.

The Hudson Valley Group of the Empire State Section of TAPPI will meet at the Queensbury Hotel, Glens Falls, N. Y., on Thursday, May 6 at 7 P. M. A program devoted to employee relations and training will be presented.

The Kalamazoo Valley Section of TAPPI will meet at the Columbia Hotel, Kalamazoo, Mich., on May 6th. J. V. Hunn of the Sherwin-Williams Co., Chicago, Ill., will talk on Alkyd, Phenolic and Urea Resins and Harold Sinclair of the American Cyanamid & Chemical Company will talk on the use of synthetic resins in paper for producing wet strength.

The Lake States Section of TAPPI and the Northwest Division of the Superintendents Association will meet jointly at the Conway Hotel, Appleton, Wis., on Saturday, May 22.

Gerald L. Swope, formerly of the American Can Company, is now a research chemist for the Owens-Illinois Can Co., Chicago, Ill.

A. Catherine Davies, formerly of the Hammermill Paper Company, is now chemist for Gustavus J. Esselen, Boston, Mass. (Miss Davies is now Mrs. Wade Volwiler.)

James J. Harrison, formerly of the Institute of Paper Chemistry, is now in the Technical Department of the Ohio Boxboard Company, Rittman, Ohio.

Robert W. Worden, formerly of the Armstrong Cork Company, is now a chemist with the American Resinous Chemicals Corporation, Peabody, Mass.

Lloyd L. Klinger, formerly of the Ward Paper Company, is now chemist for the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.

Peter J. Trucano, formerly of the Institute of Paper Chemistry, is now chemist for the Thilmany Pulp and Paper Company, Kaukauna, Wis.

A Laboratory Handbook of Pulp and Paper Manufacture, 316 pages, (incorporating the fourth edition of Stevens, Paper Mill Chemist) has recently been published by Longmans, Green & Co. It has been prepared by Julius Grant of England. This book was briefly reviewed in a recent issue of the PAPER TRADE JOURNAL. Although the author has made free use of many of the TAPPI Standards, the book represents British practices and used British terms. It is, however, a good book for beginners in the industry who desire a general knowledge of mill control. Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York, N. Y., at ten dollars per copy.

## Value and Shipment Indexes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 28, 1943—The index of the value of paper manufacturers inventories for February was 140.3 compared with 141.4 in January and 137.8 in February of last year taking an average 1939 month at 100 according to the monthly industry survey of the Department of Commerce.

The February index of the value of paper manufacturers shipments was 153 compared with 138 in January and 173 in February of last year also taking an average month of 1939 at 100.

## Paper Dust Masks and Caps

Recognized for their unusual comfort and economy features, Aldex Dust Masks and Caps, are being adopted by leading industrial plants for employee-protection from dusts and moving machinery.

Aldex Caps are used by both male and female workers where it is necessary to protect the hair and head from dust-laden air, moving machinery, or both. They are being widely used in food and drug

processing and packaging operations, to prevent loose hair contaminations. Female workers especially appreciate Aldex Caps because they are cool and consequently do not upset "hair-dos." New drawstring feature allows adjustment to all headsizes.

Aldex Caps and Masks owe their superiority to the unusual material from which they are made. Aldex is a vegetable fiber paper product which can be stitched, washed and ironed, like fabric. Tiny pores permit free and unhampered air passage, yet dust particles of ordinary size will not penetrate. Aldex Caps and Masks are inexpensive enough to be disposed of after use, yet they may be washed for reuse, if necessary. Workers in an entire plant can be supplied for a long period of time, at extremely low cost.

Aldex Caps and Masks are manufactured by the Aldine Paper Company, 373-375 Fourth Avenue, New York; descriptive folders, price lists, and actual samples may be obtained upon request to the makers.

## Killed in Boiler Explosion

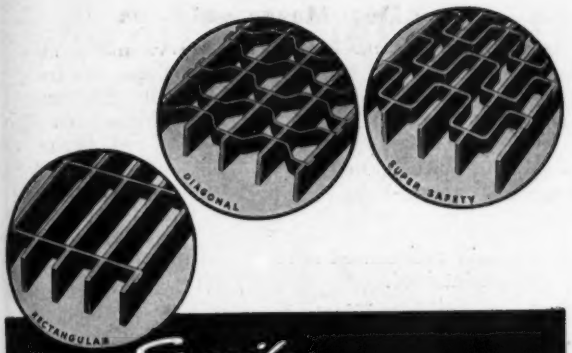
RICHMOND, Va., April 22, 1943—Funeral services for Lynton B. Knighton, 37, assistant superintendent of the Albemarle Paper Company, who was killed in the boiler explosion Tuesday afternoon at the plant here, were held today at the Billups Funeral Home with the Rev. Carlton S. Prickett, D.D., pastor of Grove Avenue Baptist Church, officiating and with interment following in Riverview Cemetery.

The pallbearers were Tom McGhee, Richard Morris, A. L. Garrett, Stewart Fields, Heth Owen, Ashby Ford, A. L. Jeter and Russell Mansfield.

Mr. Knighton, who was well known in this city's business life, came to Richmond 14 years ago from Bluffton, Ga. He was a graduate of Oglethorpe University, Atlanta, Ga.

## Robertson Box Nets $106,577

Robertson Paper Box Company, Inc.—For 1942: Net income after $106,577 Federal and State taxes was $84,317, against $101,320 for 1941.

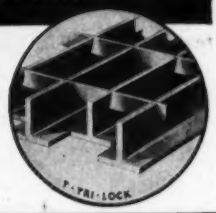



Specify
TRI-LOK

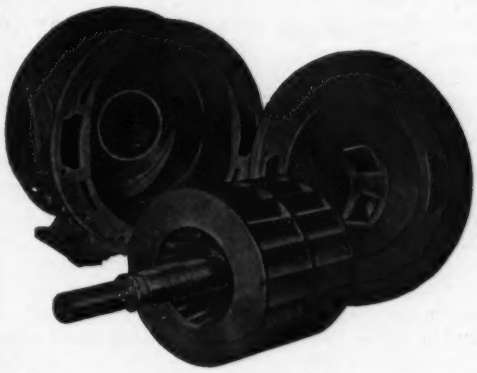
OPEN STEEL FLOORING • SAFETY STEPS
CONCRETE ARMORING T. TRI-LOK

DRAVO CORPORATION
300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES

Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.




SIMPLICITY



NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

Mechanicville, New York
Luke, Maryland
Covington, Virginia

Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

PRICE & PIERCE »»»»»»»»ltd•

Wood Pulp & Paper Agents

60 East 42 Street
New York, N. Y.

# New York Paper and Pulp Market Review

## Paper Demand Active With Backlog Orders Continuing Relatively High—Pulp Market Very Strong in All Bleached Grades—Old Cotton Rag Market Active—Waste Paper Sales Are Expanding.

Office of the PAPER TRADE JOURNAL.
Wednesday, April 28, 1943.

Paper sales in the wholesale market continue at a relatively high level, with backlog orders still reported at a relatively high level in all major grades.

Appendix of Limitation Order L-20, issued by the WPB this week permits lighter weight rag-content bond paper (substance weight 11 lbs. per 500 sheets, 17x22) to be used in all standard grades and colors of fine writing paper. Formerly, this was confined to typewriter use. The removal of this restriction is expected to clear up much confusion and eliminate some hardship experienced by mills supplying this type of paper to converters and general paper merchants.

Paper production for the week ended April 17 was estimated at 89.9%, compared with 100.8% for 1942, with 95.4% for 1941, with 86.3% for 1940, and with 82.5% for the corresponding week for 1939.

Paper board production for the week ended April 17 was 96.0%, compared with 94.0% for 1942, with 78.0% for 1941, with 72.0% for 1940, and with 69.0% for the corresponding week for 1939.

The A. N. P. A. reports a decline in the consumption of newsprint for March, 1943, of 5.5%, compared with March, 1942, and 8.3% compared with March, 1941.

Latest available information relating to the overall production of paper for 1942, including paper board, issued by the Office of Civilian Supply, is approximately 16,000,000 tons, or substantially less than the output of 1940. An increase in the output of paper board and a decline in some less essential types of paper are expected.

### Wood Pulp

Present estimates of an unofficial character, indicate that chemical wood pulp production for 1943 will probably be curtailed about 20% under the 1942 output. The utilization of more rags and waste paper is indicated. Reports by the WPB and from suppliers of pulp, reflect that the bleached sulphite supply situation must inevitably continue critical. At this date all bleached pulps are relatively scarce. The supply situation in other grades of pulp is relatively easy .

### Rags

Mill buying of new white cuttings is reported limited this week. Colors are in more active demand at ceiling prices.

Trading in old cotton rags is active and in good volume, under steady buying by felt mills. Sales at ceiling prices for No. 1 and No. 2 roofing rags are reported. Demand is also steady for old whites, blues, and on blue overalls.

### Old Rope and Bagging

Mill buying of old Manila rope continues steady, with other fibers in active demand at maximum prices.

Demand for scrap bagging is active. Supplies are limited and this market is strong, with ceiling prices firmly maintained.

### Waste Paper

Major grades of waste paper are firm, with the high and medium grades at ceiling prices. Prices on book stock are softer. Somewhat firmer prices are reported on No. 1 mixed and on folded news. Some sales .70 per cwt. on No. 1 mixed paper, and at .75 per cwt. on folded news have been reported.

### Twine

Demand for twine and cordage is active, with all imported fibers scarce and generally unavailable for most civilian uses. Prices are firm on all standard grades of hard and soft fiber twines.

## New Haven Board Co. Elects Officers

At a recent meeting of the board of directors of the New Haven Pulp and Board Company of New Haven, Conn., the following officers were elected: William R. Shaffer, chairman of the board; Joseph S. Miller, president; William B. Calkins, vice-president; Henry D. Fisher, vice-president and secretary-treasurer; Walter F. Daley, vice-president; Julian H. Morgan, assistant treasurer; Ellsworth W. Cowles, assistant secretary.

The New Haven Pulp and Board Company are manufacturers of paper boxboard since 1901. The Company added a folding carton manufacturing division to its operation in 1938.

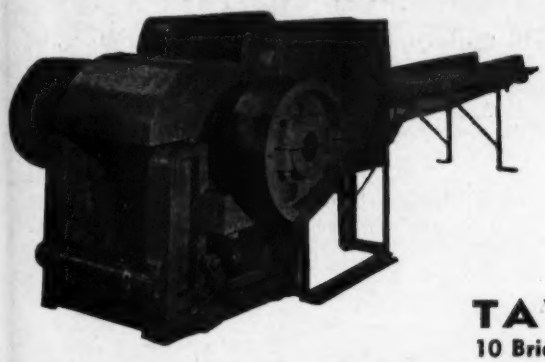
## Manpower Situation Less Acute

There seems to be some difference of opinion in Chicago as to the manpower situation. All waste dealers report that the shortage is critical but there are some who feel that there is not enough scrap available to employ a full labor force profitably. Other dealers would like to seek employment at least tripled and are pleased that the situation does show some improvement as a minor rise in employment was reported in several yards following a slight raise in wages about one month ago.

## Wm. W. Newton at Holyoke

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 26, 1943—William D. Newton, assistant treasurer of the Newton Paper Company, Holyoke, Mass., whose office is in Boston, is at the mill most of the time now, due to the extreme labor shortage in Holyoke.



## FOR MAXIMUM PRODUCTION

You Can Rely on This

## No. 11 MULTIPLEX CUTTER

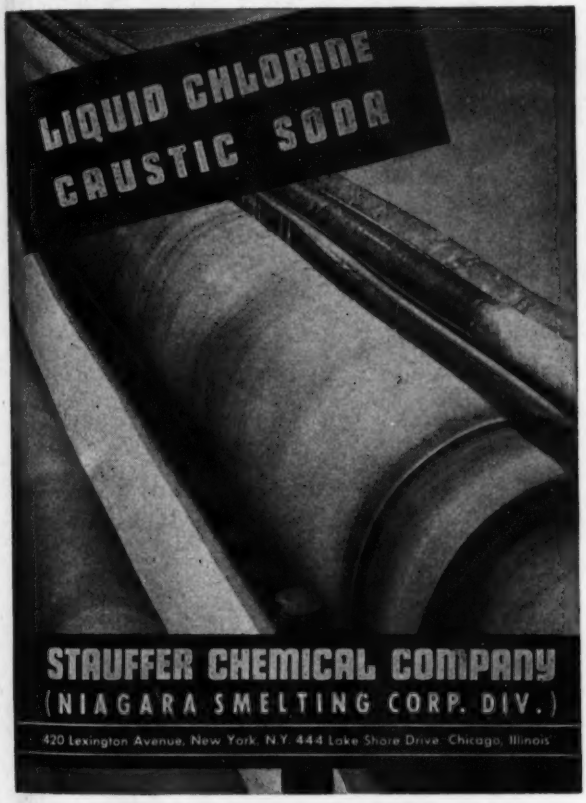
**Rated to give a constant flow of finely cut rags, at the rate of 3 tons an hour.**

**One of several types that fill every requirement in paper mills of all kinds.**

*Let Us Know Your Cutting Problems*

**TAYLOR-STILES & COMPANY**

**10 Bridge Street,** **Riegelsville, N. J.**




**STAUFFER CHEMICAL COMPANY**
(NIAGARA SMELTING CORP. DIV.)
420 Lexington Avenue, New York, N.Y. 444 Lake Shore Drive, Chicago, Illinois

*More than just a* TRADE MARK

EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

**BUT also a guarantee by men who for 78 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.**

**KNOX WOOLEN CO.**
**CAMDEN, MAINE.**

*For High-Speed, Dependable*

## PAPER CONVERTING MACHINES

*contact*

## POTDEVIN

**Paper Bag Machines, Aniline & Oil-Ink Presses, Waxing, Gluing, Varnishing, Laminating Machines.**

**POTDEVIN MACHINE CO.**
EST. 1893
1223 38TH ST BROOKLYN N Y

POTDEVIN

## W. & L. E. GURLEY

*Established 1845*

**Manufacturers of Instruments for Paper and Textile Testing**

***(Porosity — Smoothness — Softness — Stiffness — Curl — Shrinkage — Sizing)***

**Engineering and Surveying**
**Hydraulic Engineering**
**Aeronautical Navigation**
**Meteorology**
**Standard Precision Weights and Measures**

**Catalogs sent on request**

**TROY, N. Y., U. S. A.**

# MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, April 28, 1943.

BLANC FIXE—Prices on blanc fixe are firm and continue unchanged at prevailing market levels. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b., works. Demand reported fair for the week.

BLEACHING POWDER—Prices on bleaching powder are firm. Current demand reported active. Bleaching powder is currently quoted at $2.50 per 100 pounds, in drums, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 100 bags or more, 21 cents per pound; 20 bags, 21¼ cents per pound; less than 20 bags, 21¾ cents per pound, f.o.b., shipping point.

CAUSTIC SODA—Prices on caustic soda are reported unchanged. Demand for the current week is reported active. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged. Demand reported fair for the current week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Government demand for war use continues heavy. Supplies larger. Prices firm. Chlorine is currently quoted at from $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on some grades of rosin are higher for the current week. "G" gum rosin is currently quoted at $3.49 per 100 pounds in barrels, Savannah. "FF" wood rosin is currently quoted at $3.43 per 100 pounds in barrels, New York. Seventy per cent gum rosin size is currently quoted at $3.68 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand reported moderate for the current week. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand heavy. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue to be reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Supply more limited for the current week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at from $1.75 to $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $16 to $21 per ton, at mills. No quotations on imported talc.

# MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

## Paper

(Delivered New York)

News, per ton—

| | | | |
|---|---|---|---|
| Roll, contract | *$54.00 | @ | — |
| Sheets | 62.00 | " | — |

* OPA Maximum Price.

Kraft—per cwt.—Car'oad Quantities Zone A, f.o.b. Mill

| | | | |
|---|---|---|---|
| Superstandard Wrapping | *$5.25 | @ | — |
| No. 1 Wrapping | *5.00 | " | — |
| Standard Wrapping | *4.75 | " | — |
| Standard Bag | *4.375 | " | — |

* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots

| | | | |
|---|---|---|---|
| White No. 1 | 1.12½ | " | — |
| White No. 1 M. G. | 1.10 | " | — |
| White No. 1½ | 1.00 | " | — |
| White No. 2 | .90 | " | — |
| Anti-Tarnish M.F. | 1.20 | " | — |
| Colored | — | " | — |
| Kraft | .95 | " | — |
| Manila | .90 | " | — |

Toilet—1 M. Sheets—Per Case

| | | | |
|---|---|---|---|
| Unbleached | 4.25 | " | — |
| Bleached | 5.70 | " | — |
| Unbl. Toilet, 1 M. | 4.16 | " | — |
| Bleached Toilet | 5.70 | " | — |

Paper Towels, Per Case—

| | | | |
|---|---|---|---|
| Unbleached, Jr. | 2.60 | " | — |
| Bleached, Jr. | 3.20 | " | — |

Manila—per cwt.—C. l. f. a.

| | | | |
|---|---|---|---|
| No. 1 Jute | 11.25 | @ | — |
| No. 1 Manila Wrapping, 35 lb. | 6.00 | " | 6.25 |
| No. 2 Manila Wrapping, 35 lb. | 5.75 | " | 6.00 |

Boards, per ton—

| | | | |
|---|---|---|---|
| News | *48.00 | @ | — |
| Chip | *45.00 | " | — |
| Sgl. Mla. Ll. Chip | *60.00 | " | — |
| White Pat. Coated | *75.00 | " | — |
| Kraft Liners 50 lb. | *63.00 | " | — |
| Binders Boards | 84.00 | " | 116.00 |

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

| | Bonds | Ledgers |
|---|---|---|
| 100% Rag Ext. No. 1 | $39.10@$46.00 | $40.25@$47.25 |
| 100% Rag | 32.20 " 37.75 | 33.35 " 39.25 |
| 85% Rag | .... " .... | 29.90 " 35.00 |
| 75% Rag | 23.00 " 27.00 | 24.15 " 28.25 |
| 65% Rag | .... " .... | 22.80 " 27.75 |
| 50% Rag | 18.70 " 22.75 | 19.90 " 24.25 |
| 25% Rag | 16.40 " 20.00 | 17.55 " 21.50 |

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

| | Bonds | Ledgers |
|---|---|---|
| No. 1 | $10.55@$12.75 | $11.70@$14.25 |
| No. 2 | 9.65 " 11.75 | 10.80 " 13.25 |
| No. 3 | 9.20 " 11.25 | 10.35 " 12.50 |
| No. 4 | 8.90 " 10.75 | 10.05 " 12.25 |

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

| | | | |
|---|---|---|---|
| No. 1 Glossy Coated | $13.65 | @ | $15.50 |
| No. 2 Glossy Coated | 12.40 | " | 14.00 |
| No. 3 Glossy Coated | 11.60 | " | 13.25 |
| No. 4 Glossy Coated | 11.15 | " | 12.75 |
| No. 1 Antique (watermarked) | 10.25 | " | 11.75 |
| No. 2 Offset | 9.60 | " | 11.00 |
| A Grade E. F. | 9.35 | " | 10.75 |
| A Grade S. & S. C. | 9.60 | " | 11.00 |
| B Grade E. F. | 8.85 | " | 10.25 |
| B Grade S. & S. C. | 9.10 | " | 10.50 |
| C Grade E. F. | 8.55 | " | 9.75 |
| C Grade S. & S. C. | 8.80 | " | 10.00 |
| D Grade E. F. | 8.25 | " | 9.50 |
| D Grade S. & S. C. | 8.50 | " | 9.75 |

Ivory & India at $.50 cwt. extra.

## Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

| | |
|---|---|
| Bl. Softwood Sulphite | $76.00 |
| Unbl. Softwood Sulphite | 65.00@ 66.00 |
| Bl. Hardwood Sulphite | 73.50 |
| Unbl. Hardwood Sulphite | 63.50 |
| Bl. Mitscherlich | 81.00 |
| Unbl. Mitscherlich | 72.00 |
| N. Bleached Sulphate | 86.00 |
| S. Bleached Sulphate | 79.00 |
| N. Semi-Bleached Sulphate | 62.00 |
| S. Semi-Bleached Sulphate | 75.00 |
| N. Unbl. Sulphate | 73.00 |
| S. Unbl. Sulphate | 63.50 |
| Bl. Soda | 66.00 |
| Unbl. Soda | 62.00 |
| Groundwood | 46.00 |

Transportation Allowances Applying to Producers of Wet Wood Pulp.

| | Below 50% Air Dry Weight |
|---|---|
| Northeast | $13.50 |
| Lake Central | 13.50 |
| Southern | 16.00 |
| West Coast (in area) | 10.50 |
| West Coast (out area) | 16.50 |

| | 50%-80% Air Dry Weight |
|---|---|
| Northeast | $11.50 |
| Lake Central | 11.50 |
| Southern | 14.00 |
| West Coast (in area) | 9.50 |
| West Coast (out area) | 15.50 |

Applying to Producers of Dry Wood Pulp.

| | Above 80% Air Dry Weight |
|---|---|
| Northeast | $8.50 |
| Lake Central | 8.50 |
| Southern | 11.00 |
| West Coast (in area) | 7.50 |
| West Coast (out area) | 13.50 |

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

## Domestic Rags

New Rags (Prices to Mill f. o. b. N. Y.)

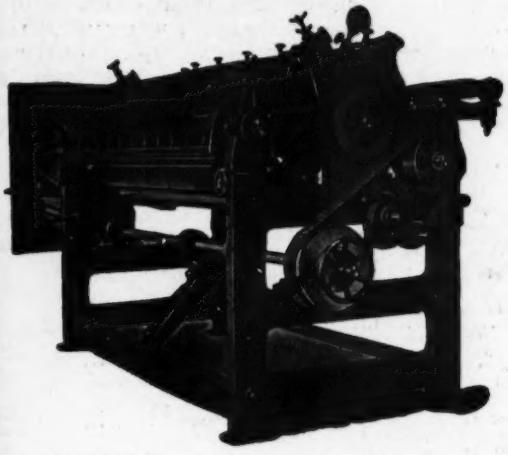
Shirt Cuttings—

| | | | |
|---|---|---|---|
| New White, No. 1 | *7.25 | @ | — |
| Silesias No. 1 | *5.75 | " | — |
| New Unbleached | *7.50 | " | — |
| Blue Overall | *5.50 | " | — |
| Fancy | *3.50 | " | — |
| Washables | *3.00 | " | — |
| Bleachable Khaki Cuttings | *4.25 | " | — |
| Unbleachable Khaki Cuttings | *3.50 | " | — |

* OPA Maximum Prices.

MODEL 28

# ROLLER BEARING CUTTER



## HAMBLET MACHINE CO.

LAWRENCE, MASS.

MAKERS OF

SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

*Safe Footing* ALWAYS!

FOR PAPER PLANT OPERATIVES, WHETHER FLOORS ARE WET, SLIPPERY OR DRY

# KLEMP STEEL Safety MATS

Non-skid standing or moving about machines, tables, benches, etc. Protect operatives from accident. Indestructible rugged mesh lies flat, rolls up, can be placed anywhere. Self-cleaning. Any lengths to 25 ft., any width to 6 ft. Multiples easily connected to cover any area. Ask for sample, details and prices.

*SEND FOR COMPLETE KLEMP CATALOG*

Shows Klemp Hexteel heavy duty Surface Armor. Klemp Floorsteel, Klemp Welded and Riveted Gratings, Stair Treads, etc. Wire or write

*Special Representative*
*C. P. Robinson, 420 Lexington Ave., New York, N. Y.*

## WM. F. KLEMP COMPANY

*"Steel Flooring Specialists"*

6617 S. MELVINA AVE. CHICAGO, ILL.

COPIES OF
THIS HISTORICAL
RECORD OF

**250 YEARS OF PAPERMAKING IN AMERICA**

CLOTH BOUND, STAMPED IN METALLIC INK, FULLY ILLUSTRATED AND SUITABLE FOR ANY LIBRARY ARE AVAILABLE AT

**$3.50 PER COPY**

**Lockwood Trade Journal Co. Inc.**
15 West 47th St. New York City, N. Y.

## "Put 'em on, Buddy! We need your eyes"

"I'm giving everything I've got, to preserve the kind of a world you want to live in. I'm not kicking either, but I'm expecting you to do your part, too. I depend on your help—in buying War Bonds, in saving your tires, in searching the house for scrap metal. More than that, I'm counting on you for a full week's work—every week."

Industrial eye injuries mean priceless days lost. Foggy vision means costly mistakes and rejections. Whatever your job, your work is no better than your eyes.

For every job, for every requirement you may impose on your eyes, there are goggles and glasses to protect eyes and bring vision to top performance. Shock-proof lenses. Heavy-duty frames for every industrial use. Lenses to correct almost any visual defect. Graceful rimless eyewear for those who want to look well while they see well.

Bausch & Lomb is manufacturer of goggles, lenses, eyewear and eye examination instruments. Less spectacular, perhaps, these contributions are as important as the special Bausch & Lomb instruments of war—range finders, binoculars, anti-aircraft height finders, aviators' goggles, aerial mapping equipment, and many others going every day to the forces of the United Nations.

Your eyes are important to you—important to the nation. There are men in your community qualified to examine your eyes skillfully, to fit the right glasses. They are ready to put your eyes in fighting trim.

## BAUSCH & LOMB

OPTICAL COMPANY • ESTABLISHED 1853

AN AMERICAN SCIENTIFIC INSTITUTION PRODUCING OPTICAL GLASS AND INSTRUMENTS FOR MILITARY USE, EDUCATION, RESEARCH, INDUSTRY AND EYESIGHT CORRECTION

### Old Rags

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | *3.80 | " | — |
| Miscellaneous | *3.20 | " | — |
| White, No. 2— | | | |
| Repacked | *2.90 | " | — |
| Miscellaneous | *2.65 | " | — |
| Third and Blues— | | | |
| Repacked | *2.20 | " | — |
| Miscellaneous | *1.80 | " | — |
| Roofing Rags— | | | |
| No. 1 | *1.55 | " | — |
| No. 2 | *1.45 | " | — |
| No. 3 (bagging) | *1.35 | " | — |
| No. 4 | *1.35 | " | — |
| No. 5A | *1.35 | " | — |
| Old Manila Rope | 5.75 | " | — |

OPA Maximum Prices.

## Foreign Rags

All Prices nominal

### New Rags

| | | | |
|---|---|---|---|
| New Dark Cuttings | 2.25 | @ | 2.40 |
| New Mixed Cuttings | 2.00 | " | 2.20 |
| New Light Silesias | 5.50 | " | 5.75 |
| Light Flannelettes | 5.50 | " | 5.75 |
| New White Cuttings | 7.00 | " | 7.50 |
| New Light Oxfords | 4.00 | " | 4.50 |
| New Light Prints | 3.00 | " | 3.25 |

### Old Rags

| | | | |
|---|---|---|---|
| No. 1 White Linens | 7.50 | " | 8.50 |
| No. 2 White Linens | 6.50 | " | 7.50 |
| No. 3 White Linens | 4.50 | " | — |
| No. 4 White Linens | 3.25 | " | 3.25 |
| No. 1 White Cotton | 4.25 | " | 4.75 |
| No. 2 White Cotton | 3.25 | " | 3.75 |
| No. 3 White Cotton | 2.50 | " | 3.00 |
| No. 4 White Cotton | 1.90 | " | 2.20 |
| Extra Light Prints | 2.00 | " | 2.40 |
| Ord. Light Prints | 1.75 | " | 2.15 |
| Med. Light Prints | 1.55 | " | 1.95 |
| Dutch Blue Cottons | 2.25 | " | 2.50 |
| French Blue Linens | 3.00 | " | — |
| Checks and Blues | 2.00 | " | — |
| Linsey Garments | 1.90 | " | 2.00 |
| Dark Cottons | 1.50 | " | 1.60 |
| Old Shopperies | 1.30 | " | 1.45 |
| New Shopperies | 1.45 | " | 1.50 |
| French Blues | 2.25 | " | 2.50 |

## BAGGING

(Prices to Mill, f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | Nominal | | |
| Domestic | 4.00 | @ | 4.25 |
| Wool Tares, light | 4.25 | " | 4.50 |
| Wool Tares, heavy | 4.50 | " | 4.75 |
| Bright Bagging | 4.50 | " | 4.85 |
| Manila Rope— | | | |
| Foreign | — | " | — |
| Domestic | *5.75 | " | — |
| Jute Threads | 4.25 | " | 4.75 |
| No. 1 Sisal Strings | *4.00 | " | — |
| Mixed Strings | 1.00 | " | 1.20 |

* OPA Maximum Price.

## Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

| | | | |
|---|---|---|---|
| No. 1 Hard White Envelope Cuts, one cut | 3.37½ | @ | — |
| No. 1 Hard White Envelope Cuts | 3.12½ | " | — |
| No. 1 Hard White Shavings, unruled | 2.87½ | " | — |
| No. 1 Hard White Shavings, ruled | 2.50 | " | — |
| Soft White Shavings, one cut | 2.87½ | " | — |
| No. 1 Soft White Shavings | 2.50 | " | — |
| Soft White Shavings, Misc. | 2.15 | " | — |
| No. 1 Fly Leaf Shavings | 1.67½ | " | — |
| No. 2 Fly Leaf Shavings | 1.12½ | " | — |
| No. 1 Groundwood Fly Leaf Shavings | 1.25 | " | — |
| No. 2 Mixed Groundwood Fly Leaf Shavings | .90 | " | — |
| Mixed Colored Shavings | .75 | " | — |
| Mixed Groundwood Colored Shavings | .90 | " | — |
| Overissue Magazines | 1.67½ | " | — |
| No. 1 Heavy Books & Magazines | 1.57½ | " | — |
| Mixed Books | .85 | " | — |
| No. 1 White Ledger | 2.17½ | " | — |
| No. 2 Mixed Ledger, colored | 1.87½ | " | — |
| New Manila Envelope Cuttings, one cut | 2.87½ | " | — |
| New Manila Envelope Cuttings | 2.65 | " | — |
| Extra Manilas | 1.85 | " | — |
| Mixed Kraft, Env. & Bag Cuttings | 2.75 | " | — |
| Kraft Envelope Cuttings | 3.25 | " | — |
| Triple Sorted, No. 1 Brown Soft Kraft | 2.50 | " | — |
| New 100% Kraft Corrugated Cuttings | 2.25 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| New Jute Corrugated Cuttings | .90 | " | — |
| Old Kraft Corrugated Containers | 1.50 | " | — |
| Box Board Cuttings | .72½ | " | — |
| White Blank News | 1.65 | " | — |
| Overissue News | .85 | " | — |
| No. 1 News | .75 | " | — |
| No. 1 Mixed Paper | .70 | " | — |
| Old Corrugated Containers | .82½ | " | — |
| Mill Wrappers | .85 | " | — |

### Twines

(F. o. b. Mill)

(Soft Fiber)

| | | | |
|---|---|---|---|
| Coarse Polished— | | | |
| India | .21 | @ | — |
| White Hemp | .21 | " | — |
| Fine Polished— | | | |
| Fine India | .26 | " | — |
| Unpolished— | | | |
| Box | .17¼ | " | — |
| Paper Makers | .17 | " | — |
| Tube Rope | .19 | " | — |
| Wall Paper | .20½ | " | — |
| Wrapping | .23 | " | — |
| Soft Fiber Rope | .19 | " | — |
| Cotton | .25 | " | — |

(Hard Fiber)

| | | | |
|---|---|---|---|
| Medium Java | .18 | " | — |
| Mex. Sisal | .16 | " | — |
| Manila | — | " | — |

## PHILADELPHIA

### Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White No. 1 | .07½ | @ | .07½ |
| New White No. 2 | .04½ | " | .05 |
| Light Silesias | .04½ | " | .04¾ |
| Silesias, No. 1 | .04 | " | .04¼ |
| Black Silesias, soft | .03¼ | " | .04 |
| New Unbleached | .07¼ | " | .07½ |
| Washable Prints | .03¾ | " | .03½ |
| Washable No. 1 | .02 | " | .02¼ |
| Blue Overall | .04½ | " | .05½ |
| Cottons—According to grades— | | | |
| Washable shredding | — | " | .01¾ |
| Fancy Percales | .03¼ | " | .03½ |
| New Black Soft | .02¾ | " | .03 |
| New Dark Seconds | 1.75 | " | 2.00 |
| Khaki Cuttings— | | | |
| No. 1 O. D. | .03 | " | .03¼ |
| No. 2 Mixed | .02¼ | " | .02½ |
| Corduroy | .01¾ | " | .02¼ |
| New Canvas | .04¾ | " | .05¼ |
| New Black Mixed | — | " | .02½ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1—Repacked | 3.80 | " | — |
| White No. 2—Repacked | 2.90 | " | — |
| Miscellaneous No. 1 | 3.20 | " | — |
| Miscellaneous No. 2 | 2.65 | " | — |
| Thirds and Blues— | | | |
| Miscellaneous | 1.80 | " | — |
| Repacked | 2.20 | " | — |
| Black Stockings— | | | |
| (Export) | Nominal | | |
| Roofing Stock— | | | |
| Foreign No. 1 | Nominal | | |
| Domestic No. 1 | 1.55 | " | — |
| Domestic No. 2 | 1.45 | " | — |
| Roofing Bagging | 1.35 | " | — |
| Old Manila Rope | 5.75 | " | — |

### Bagging

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | Nominal | | |
| Domestic | 3.00 | " | 3.50 |
| Sisal Rope | 3.75 | " | — |
| Mixed Rope | .75 | " | 1.00 |
| Scrap— | | | |
| No. 1 | 3.25 | " | 3.50 |
| No. 2 | 1.75 | " | 1.80 |
| Wool Tares, heavy | 4.00 | " | 4.25 |
| No. 1 New Light Burlap | 3.00 | " | 4.00 |
| New Burlap Cuttings | 3.75 | " | 4.00 |

### Old Papers

(F. o. b. Phila)

OPA Maximum Prices

| | | | |
|---|---|---|---|
| No. 1 Hard White Envelope Cuts, one cut | 3.37½ | " | — |
| No. 1 Hard White Shavings, unruled | 2.87½ | " | — |
| Soft White Shavings, one cut | 2.50 | " | — |
| White Blank News | 1.65 | " | — |
| Soft White Shavings, Misc. | 2.15 | " | — |
| No. 1 White Ledger | 2.17½ | " | — |
| No. 2 Ledger, colored | 1.87½ | " | — |
| No. 1 Heavy Books & Magazines | 1.57 | " | — |
| Overissue Magazines | 1.67½ | " | — |
| New Manila Envelope Cuttings | 2.65 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| No. 1 Mixed Paper | .70 | " | — |
| Box Board Cuttings | .72½ | " | — |
| Jute Corrugated Cuttings | .90 | " | — |
| Overissue News | .85 | " | — |
| No. 1 News | 1.00 | " | — |

## BOSTON

### Old Papers

(F. o. b. Boston)

OPA Maximum Prices

| | | | |
|---|---|---|---|
| No. 1 Hard White Shavings, unruled | 2.87½ | @ | — |
| No. 1 Hard White Shavings, ruled | 2.50 | " | — |
| Soft White Shavings, Misc. | 2.15 | " | — |
| No. 1 Fly Leaf Shavings | 1.67½ | " | — |
| No. 2 Fly Leaf Shavings | 1.12½ | " | — |
| No. 1 Groundwood Fly Leaf Shavings | 1.25 | " | — |
| No. 2 Groundwood Fly Leaf Shavings | .90 | " | — |
| Mixed Colored Shavings | .75 | " | — |
| New Manila Envelope Cuts, one cut | 2.87½ | " | — |
| Hard White Envelope Cuts, one cut | 3.37½ | " | — |
| Triple Sorted No. 1 Brown Soft Kraft | 2.50 | " | — |
| Mixed Kraft Env. & Bag Cuttings | 2.75 | " | — |
| Kraft Envelope Cuttings | 3.25 | " | — |
| No. 1 Heavy Books & Magazines | 1.57 | " | — |
| New Manila Envelope Cuts, one cut | 2.87½ | " | — |
| New Manila Envelope Cuttings | 2.65 | " | — |
| White Blank News | 1.65 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| No. 1 Mixed Paper | .70 | " | — |
| Overissue News | .85 | " | — |
| Box Board Cuttings | .72½ | " | — |
| New Corrugated Cuttings, Kraft | 2.25 | " | — |
| Old Corrugated Containers | 1.00 | " | — |
| Jute Corrugated Cuttings | 1.07½ | " | — |

### Bagging

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Gunny Bagging— | | | |
| Foreign | (nominal) | | |
| Domestic | 3.75 | @ | 4.00 |
| Sisal Rope No. 1 | *4.75 | " | — |
| Sisal Rope No. 2 | *4.25 | " | — |
| Mixed Rope | 1.35 | " | 1.50 |
| Transmission Rope— | | | |
| Foreign | (nominal) | | |
| Domestic | 2.75 | " | 3.00 |
| Manila Rope— | | | |
| Foreign | (nominal) | | |
| Domestic | 5.75 | " | — |
| Soft Jute Rope | 4.50 | " | 5.00 |
| Jute Carpet Threads | 3.00 | " | 3.50 |
| Bleachery Burlap | 8.50 | " | 9.00 |
| Scrap Burlap— | | | |
| Foreign | (nominal) | | |
| Domestic | 3.60 | " | 3.85 |
| Wool Tares— | | | |
| Foreign | (nominal) | | |
| Domestic | 4.25 | " | — |
| Aust. Wool Pouches | 4.65 | " | 4.87½ |
| New Burlap Cuttings | 4.75 | " | 5.00 |
| Heavy Baling Bagging | 4.00 | " | 4.25 |
| Paper Mill Bagging | 2.50 | " | 3.00 |
| No. 2 Bagging | 1.35 | " | —* |

* OPA Maximum Price.

### Domestic Rags (New)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints | .04½ | @ | .04¾ |
| Fancy Percales | .04¼ | " | .05 |
| New White No 1 | .06¾ | " | .07 |
| New Light Flannelettes | .05½ | " | .06 |
| Canton Flannels, Bleached | .06 | " | .06½ |
| Underwear Cutters, Bleached | .06¾ | " | .06¾ |
| Underwear Cutters, Unbleached | .05¾ | " | .06 |
| Silesias No. 1 | .06 | " | .06¼ |
| New Black Silesias | .03 | " | .03½ |
| Red Cotton Cuttings | .03½ | " | .04 |
| Soft Unbleached | .06½ | " | .06¾ |
| Blue Cheviots | .05½ | " | .06 |
| Fancy | .02¾ | " | — |
| Washable | .02¾ | " | — |
| Khaki Cuttings | .02¾ | " | .03 |
| O. D. Khaki | .03½ | " | .03¾ |
| Corduroy | .03¼ | " | .03½ |
| New Canvas | .06¼ | " | .06¾ |
| B. V. D. Cuttings | .06¾ | " | .06¾ |

### Domestic Rags (Old)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 3.80 | @ | —* |
| Miscellaneous | 3.20 | " | —* |
| White No. 2— | | | |
| Miscellaneous | 2.65 | " | —* |
| Twos and Blues, Repacked | 2.20 | " | —* |
| Old Blue Overalls | 2.25 | " | 2.50 |
| Thirds and Blues, Repacked | 2.20 | " | —* |
| Miscellaneous | 1.80 | " | —* |
| Black Stockings | 3.50 | " | 4.00 |
| Roofing Stock— | | | |
| No. 1 | 1.55 | " | —* |
| No. 2 | 1.45 | " | —* |
| No. 3 | 1.35 | " | —* |
| No. 4 | 1.35 | " | —* |
| No. 5, Quality A | 1.35 | " | —* |
| Quality B | 1.20 | " | —* |
| Quality C | .95 | " | —* |
| * Old Manila Rope | 5.75 | " | — |

* OPA Maximum Prices.

### Foreign Rags

(F. o. b Boston)

| | |
|---|---|
| Canvas | (nominal) |
| Dark Cottons | (nominal) |
| Dutch Blues | (nominal) |
| New Checks and Blues | (nominal) |
| Old Fustians | (nominal) |
| Old Linsey Garments | (nominal) |
| New Silesias | (nominal) |

## CHICAGO

### Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White Envelope Cuts, one cut | 3.37½ | " | — |
| No. 1 Hard White Shavings, unruled | 2.87½ | " | — |
| No. 1 Soft White Shavings | 2.50 | " | — |
| No. 1 White Ledger | 2.17½ | " | — |
| No. 1 Heavy Books & Magazines | 1.67½ | " | — |
| White Blank News | 1.65 | " | — |
| Mixed Kraft Env. & Bag Cuttings | 2.75 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| Overissue News | .85 | " | — |
| No. 1 News | .75 | " | — |
| No. 1 Mixed Paper | .70 | " | — |
| No. 1 Roofing Rags | 1.55 | " | — |
| No. 1 Roofing Bags | 1.45 | " | — |